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M.B.A. (Hospital Management)

(IV Semester)



Paper 4.4

QUALITY MANAGEMENT IN HOSPITALS



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Paper 4.4 : QUALITY MANAGEMENT IN HOSPITALS

UNIT I: Quality Concepts and Total Quality Management

Quality: Significance – Meaning – Concept – Quality Terminologies – Total Quality Management: Concept – Elements – Aspects – Focus – Components – Process.

UNIT II: Quality Management

ISO 9000: Evolution – Meaning – Characteristics – Benefits – ISO Manual – JCIA: Meaning – Purpose – ISO Case Study.

UNIT III: Quality Assurance

Concept – Process – Purpose – Methods – Standards and Criteria – Quality Assurance Committee .

UNIT IV: Quality Audit & Evaluation of Health Care Services

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UNIT VI: Training for Quality

Training Process – Analyzing Training Needs – Training Plan.

Books for Reference:

1. Principles of Hospital Administration and Planning, BM Sakharkar, Jaypee Brothers, I Ed.
2. Hospital and Health Service Administration, Syed Amin Tabish, Oxford University Press, I Ed.
3. Managing a Modern Hospital, A. V. Srinivasan, Response Books, I Ed.
4. The Essence of Total Quality Management, John Bank, Prentice Hall Intentional Ltd., I Ed.
5. Managing Quality, Desmond Bell, Philip McBride and George Wilson, Butterworth-Heinemann Ltd., I Ed.

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UNIT 1
QUALITY CONCEPTS AND TOTAL QUALITY MANAGEMENT

Significance of Quality

In today's competitive world, the customer becomes the focus of attention of any origination, both in the manufacturing sector and in the service sector. The quality of the product or the services provided to the customer comes under a magnifying glass, to be scrutinised by the buyer and the market. Organisations are becoming very sensitive to the need of the customer, not only to gain their goodwill, but also to avoid facing their wrath. Today, customers are willing to pay a price for value. The keyword, as far as the value of a product or service is concerned, is quality.

The quality of a service or a product is the vital factor for the survival and growth of any organisation. Quality is the engine of the economy and the fabric of a corporate organisation. Changes in the economic scenario in the county during the last six years have forced a number of organisations, both manufacturing and service, to embark on programmes related to assured quality and standardisation of process, in order to ensure the delivery of quality products or quality services, at a consistent level, to the customer. Quality means conformance to the standards, both stated and implied, at a given time, over a period of time and at a price the customer can afford to pay, or is willing to pay.

Quality in the health care industry is assuming greater significance in the developing world, not only to give the best in the filed of Medicare to the people, but also to attract patients from other countries, which results in foreign exchange inflow. A hospital can be divided into four segments – medical services, paramedical services support services and administrative services. However, the system should ensure that all services work in an unidirectional manner, to enable the patient to get the best form the institution. A hospital is a complex organisation, which need to be supported by trained professionals, state-of-the-art technology, teams of professionals committed to quality and above all, an attitude of genuine concern and care for the patients, displayed by the hospital personnel. While investment for the procurement of the right type of material, machinery and human resources is fairly high and important in hospitals, the flow of returns for the institution is a slow process. In today's

competitive world, a hospital, to be viable and completive, has to make a mark by providing quality service, coupled with continuous improvement in its respective disciplines. This will ensure a good image as far as the public is concerned and based on the good will it earns, it can become a household name. It is not easy to attain this status unless the internal system are so clearly defined that the delivery process is smooth and effective.

The complexity of a hospital as an organisation is due to the multicultural and heterogeneous workforce, with high grade professionals at one end and less qualified housekeeping personnel at the other. The vast difference in qualifications and experience between professionals and non-professionals makes it imperative to create a culture which promotes the right type of organisational climate, supported by document quality systems for organisational effectiveness. The role of specialisation and super-specialisation in various disciplines has created speciality and super speciality hospitals. The service provided and the systems followed in each of theses institutions are different and the demands as far as the delivery process is concerned, varied from one institution to the other.

There has been a mushroom growth of small nursing hoses and hospitals in India. The level of service provided by these varies as they are dependant on the professional support and the infrastructural facilities they have. As there are no clear cut norms for setting up healthcare units, a lot of compromises have been made in patient care. But today, patients are better informed about their rights and liabilities, when they undergo treatment for any ailment. They scout various hospitals treating the same disease, comparing their reputation as far as results are concerned and the cost of treatment, before taking the final decision of undergoing treatment in the particular hospital. Hence, it is decision of undergoing treatment in the particular hospital. Hence, it is important for the health care unit to project a positive image in terms of performance.

In order to provide quality service, health care units will have to work out well-defined protocols for their operating system. They will have to achieve specified international standards in specific disciplines, to enable the community to accept them as primary intuitions in a particular medical discipline. Such institutions will automatically become a benchmark for others at the national level. As a proof of their creditability, it is preferable for such institution to open themselves up for audits, by various certifying bodies, so that the systems can be

tested for quality and be certified. This will enhance the image of the institution in the eyes of the consuming public.

In India, though we have institution such as the Indian Medical Council and the Indian nursing Council, governing the practice of medical and nursing professionals, we do not have institutions which as a joint commission of hospital accreditation service, whose mission is to improve the quality of the health care organisations. So that need of the day is to set up a Board at the National level, which can take care of standardisation elements in a hospital, before it starts functioning. This will ensure that patients get the best medical treatment. But until then, institutions can open themselves up for a third party quality system certification audit by various certifying bodies such as BIS, STQC, TUV, BVQI for their effective functioning.

What is Quality?

- Quality is fitness for use
- Quality is conformance to specification
- Quality must be built into the parts during design and manufacture
- Quality is achieved by process control and not by inspection

Quality is Free

- For the any company, the cost of quality is about 25% of total sales
- The cost of prevention is a fraction of the cost of fixing mistakes after they are made
- Investments in prevention can drastically reduce the total cost of quality

Quality Notion

Conformance to requirements or specification fitness for the purpose

Quality Control

The basic operational techniques and activities that are used to fulfil requirements for quality make things right the first time work for continual improvement

Quality Policy

Covers fitness for use, performance, safety reliability

Quality Management

Providing quality service is the most cost effective manner is the most effective way

Quality System

Structured, systematic, standard procedures to be laid down to maintain uniformity and consistency.

Quality Assurance

Continuous evaluation of factors that affect the quality of a product and ensure that same level of quality at all times. Quality assurance is the all embracing title which covers all functions, form market research through production to field service, which ensures that the customer obtains a product of service which is fit for the purpose.

Quality Objective

Have achievement of sustenance of quality as the main goal.

Quality Awareness

Awareness and knowledge about quality at all levels – Management, Employees, Clients, and Suppliers.

Cost of Quality

- Prevention Costs: Build is Right the first time
- Appraisal Costs: Inspection and testing
- Internal Failure Costs: Scrap and rework
- External failure costs: Warranty claims, recalls, lost business

Quality can be grouped into 2 types

- Abstract Group: The physical qualities fall under this group. These qualities cannot be defined on screen.
- Physical Group: Qualities falling under this group can be seen with naked eyes, can be felt and also measured.

Major Dimensions of Service Quality (RARE)

- Reliabi'.ity

- Timely appointment
- Accurate diagnostics
- Excellent infrastructure

Assurance

- Reputation
- Skills
- Knowledge

Responsiveness

- Easy access
- No waiting
- Listen

Empathy

- Demonstrate at concern
- Best care

Strategic Integration of Quality

Through this text emphasis has been placed on the integration of quality into the organization's activities. Managing quality effectively is achieved through:

- Policy and strategy being formulated on the basis of information that is relevant to total quality (i.e. feedback from customers, suppliers, employees, etc.)
- The facilitation of quality improvement throughout the organization
- The development and maintenance of financial and non-financial quality measurement systems
- The promotion of 'partnership in quality' relations with customers and suppliers
- The planning and providing of quality skills education and training.

Quality Strategy

- To improve service to the customer
- To improve business reliability and operating efficiency
- To develop people-involvement mechanisms
- To improve company-employee communications
- To establish clear departmental goals
- To facilitate an open style of management and team building
- To achieve accreditation to ISO 9000.

Appraisal of Quality

The measurement underpins all aspects of the improvement process. Measurement has been an integral feature of quality activity. Quality audits, design review, determining process capability, controlling variability, measuring quality costs, evaluating the effectiveness of teams and of training all contribute to the

- Establishment of current level of performance
- Highlighting of areas for improvement
- Monitoring of progress and achievement.

Quality appraisal is the process of identifying business practices, attitudes and activities that are either enhancing or inhibiting the achievement of quality improvement within your organization. Ideally, these factors would be recognized and addressed before a quality improvement initiative is implemented. However, quality appraisal adds great value at many points during the quality improvement process:

- At the start of an initiative
- To guide action; during implementation
- To pinpoint necessary adjustments
- At any time thereafter, to benchmark progress. This can be done by external appraisal or by internal appraisal (i.e. self-assessment).

Quality Culture

A quality culture requires everyone to focus on the customer, the ultimate user of output. Individuals need to understand who the customer is and the work process performed to create the output. Education and training is an integral part of the process of creating the 'quality culture'. It is an ongoing activity requiring constant monitoring constant monitoring and reinforcement.

Potential success

- Plan education and training, set targets
- Look down through the organization structure
- Select credible people as trainers
- Involve managers in training of their staff
- Involve senior managers to demonstrate commitment
- Encourage planning of application in the workplace

Potential failure

- Unrealistic timetables
- Inadequate delivery
- Desire for instant return on training investment
- Not training all employees
- Not allowing employees to complete training
- Inconsistent communication

TOTAL QUALITY MANAGEMENT

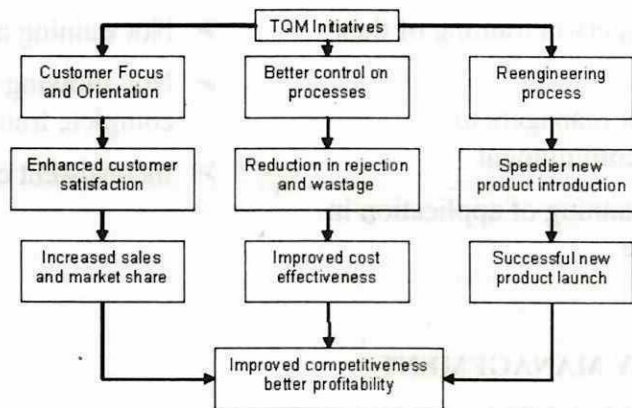
Key Concepts behind TQM

- Involvement of people: People are the most valuable asset great accomplishments are possible by helping people achieve their potential. This should be the main job of the management
- Continuous improvement based on objective data
- Statistical analysis is essential to focus on the customer

Elements of TQM

- TQM strive in achievement in quality – conformance to customer's requirements
- TQM involves everyone in the organization

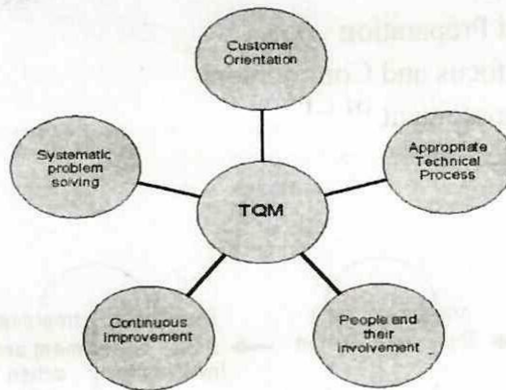
- TQM aims in Standardising and improving all process
- TQM is a management philosophy and system
- Leadership: Involvement of CEO & Top Management
- People involvement process depend on people and their contact with customers
- TQM Culture: New way of management, lot of interaction between various functions
  - Team work
  - Customers focus
  - Process orientation
  - Attitude for continuous improvement



Focus of TQM

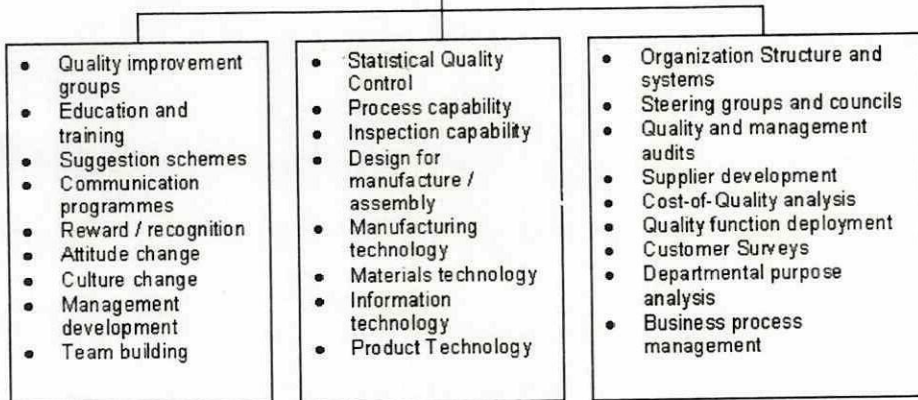
- Competitiveness
- Enhanced customer satisfaction
- Improved cost effectiveness
- Introduction of new products and services

Aspects of TQM



Components of TQM

- ➢ Quality policy and its communication
- ➢ Implementation of quality systems
- ➢ Team work and participation
- ➢ Problem solving tools and techniques
- ➢ Quality cost and measurements
- ➢ Process control
- ➢ Education and training
- ➢ Quality audit and review



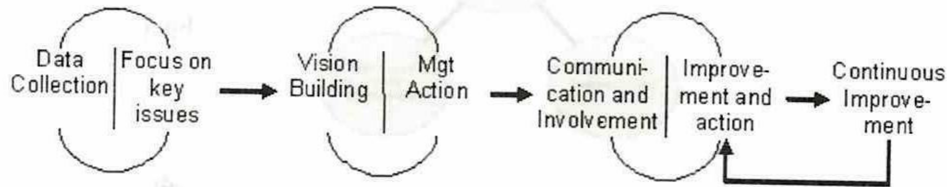
Total Quality Management Process

Phase 1: Diagnosis and Preparation

Phase 2: Management focus and Commitment

Phase 3: Intensive Improvement

Phase 4: Review and Restart



UNIT 2

QUALITY MANAGEMENT

ISO 9000

Evolution

The evolution of ISO 9000 can be traced back to the 1950s where the initial thrust for quality systems came via the MIL standards in the USA during the construction of the first nuclear submarines and power stations. During the 1960s interest focused on the importance of clearly defined systems – a documented approach to ensure quality. The MIL standards were taken up by NATO members in the procurement of military hardware. A great deal of the basic work arrived out in the compiling of standards for quality assurance stems from the NATO standards known as the AQAP series (Allied Quality Assurance Publications). These standards gave detailed requirements, stated the need for the requirements and suggested evaluation questions.

In 1972 the Ministry of Defence Procurement Executive announced a new system of quality assurance which they proposed to adopt for all their purchased materials. The system was based directly on the NATO requirements and the MOD issued a corresponding set of defence standards, the most important being the 05 series (05-21, 05-24 and 05-29). Thus the concept of formal assessment was introduced in the UK by the MOD assessing its main contractors and sub-contractors.

The defence standards were virtually adopted by the British Standards institution in 1974 with the standards BS 5179 being published. However, it was only a guide, as many sectors for industry had misgivings about simply reissuing a MOD standard as a BSI contractual standard. This position was finally resolved in 1979 with the issue of BS 5750 / ISO 9000.

In March 1987 the International Standards for Quality Systems were published (ISO 9000 – 9004) and in June 1987, BS 5750 was aligned and is now identical to the new ISO. The publication of the ISO 9000 series has brought an international recognition of quality system assessments. The successful adoption by CEN of the EN 29000 series of European Standards, mirroring the ISO 9000 series, also took place in 1987.

What is ISO 9000?

ISO 9000 is a quality system standard that sets out the methods by which a management system, incorporating all the activities associated with quality, can be implemented in organization to ensure that all the special performance requirements and the needs of the customer are fully met. The standard applies to the quality management systems a company uses, not its product. It is a management system which can be applied to almost every manufacturing or Service Company.

ISO 9000 describes how you can establish, document and maintain an effective quality system which will demonstrate to your customers that you are committed to quality and are able to supply their quality needs. The standard has been broken down into sections to enable manufacturers to implement it easily and efficiently. It provides a framework for designing your own quality system. In the various clauses the essential requirements of a sound and practical way of work are specified. Once device, your quality system should be flexible enough to handle any work you undertake. Whereas quality means meeting the needs of your customer, the quality system makes sure that you meet the needs of the customer. Quality assurance is a management discipline and a logical progression of activities which influence the quality of the end product.

Characteristics of ISO

- It can be implemented in any size and type of the organisation
- It is implemented of the product, size and country
- It has international acceptance and recognition
- It ensures considerable improvement in quality
- It provides a competence edge in the domestic and global markets
- Consistent improvement
- It reduces wastes and repairs
- Maintained systematic records
- Systematic way of material handling and storage
- Improved work atmosphere and performance
- Product right in the first instance, no rework and nothing for rectification
- Internal credibility and expertise – increasing the no. of customers

- Suppliers without ISO certificate can be denied insurance
- Create more confidence
- Recognises team efforts, their individual efforts focuses on professional development and training.
- As it is system oriented reduces inefficient expenditure of time, resources and energy in major problems.
- ISO leads to TQM

Benefits of Accreditation to ISO 9000

There is a growing tendency in industry and commerce world-wide to implement formal quality systems such as ISO 9000. For example, in Britain some 20,000 organisations have or are in the process of seeking, accreditation for the ISO 9000 standard. The reasons for this current level of activity are many. Customer requirements, National and European requirements for inclusion on tender lists and the harmonization of standards, all play a part. However, there is a danger that organizations may adopt a formal quality management system for operational reasons only, often as a reaction to changing competitive conditions. As a consequence of such an operational rather than strategic focus, the benefits accruing from successful implementations may not be attained.

There are there basic reasons shy companies may choose to go through the ISO 9000 registration process.

- For the intrinsic value gained form meeting the challenge
- To met the requirements of a single large supplier such as government agencies that are required ISO 9000 or equivalent compliance for large contracts
- To maintain or gain access to markets, particularly in Europe, where quality plays role in the emerging set of harmonised product safety standards.

Fundamentally, third-party certification under the ISO 9000 standards means that a company can demonstrate that is an appropriate quality system for the products or services it offers. Moreover, standardised certification means that

a single audit process can assure purchaser organisations that a supplier company's quality system meets requirements and redundant audits by several of a company's customers can be eliminated or at least scaled down.

The implementation of an ISO 9000 quality system has potential advantages.

- Having an organised form of communication means
    - Improved management
    - Better planning of all activities
    - Early resolution of problems
- More precise specification means
    - Correct interpretation of customer needs
    - Better chance of complying
    - Identification of weakness in specifications / orders
- Greater control of sub-contractors and suppliers
- Increased efficiency giving a better quality product at no extra cost and increased productivity
- Less remedial work and scrap
- Feedback of customer problems and more rapid correction of inadequate production methods.
- Improved performance in meeting target delivery dates
- General increase in the standard of workmanship and therefore a more satisfied customer
- Improvement of the reputation of the manufacturer

Various sources confirm that the actual benefits to be accrued from certification relate to the perceived advantages:

- As a result of the implementation of an ISO standard, companies experience
    - A decrease in the number of customer complaints
    - An increase in the number of sales
    - An increase in the number of repetitive customers
    - An increase in the number of satisfied customers

- The standard helps to highlight troublesome areas in production process and enables personnel to gain a more though knowledge of processes
- Internal audits prove to be an effective way of highlighting deficiencies in the whole system in that they reveal areas for improvement and significantly, assess the efficiency or inefficiency of management
- The documentation process aids the training and development of employees
- Better use is made of scarce resources with the result being
  - Lower defect rates
  - More individual responsibility for quality
  - Less waste
  - More focus on problem solving

One of the potential advantages of pursuing accreditation to ISO 9000 is that there is increased efficiency giving a better quality product at no extra cost. Ultimately, registration to ISO 9000 may be sot efficient in that the continued focus on process improvements results in return on investment. However in the short term it is necessary to be aware of the cost implications of gaining and maintaining accreditation to ISO 9000.

In terms of gaining certification, the cost element can be split into two categories. One is the internal time and efforts required to design and install the system. The other consist of the external costs which include certification fees, consultancy fees, the costs of new equipment or services, the costs of reorganisation and training costs.

The issue of quality costs is one to which the ISO 9000 system standards do not directly refer. There is non-specific requirement to monitor quality costs. Most organisations who purse accreditation regard the prevention of waste and mistakes as fundamental task of management, which could not be separately costed.

The subject of quality cost models is under review and an addition to the British Standard, BS 6143, is currently being prepared to incorporate new approaches to quality costing. Whether or not the inclusion of a quality cost element becomes a mandatory element for the ISO 9000 standards, organisations

should attempt to progressively eliminate costs which no not add value to the product, such as inspection and test internal transportation and storage.

The status of ISO 9000 as it applies to services and the services sector has been addressed by the publication of the ISO series Guidelines for Services (ISO 9004, Part 2) in draft form in 1990. Although an organization cannot become registered to ISO 9004, it provides a useful mechanism for dealing with the internal as well as external customer. In the majority of companies the internal customer constitutes up to 80% of the market as the percentage of employees actually making things is approximately 20%. The rest is all service.

The scope of the standard covers the definition of 'service'. Descriptive characteristics include how much product content there is and how long the service lasts. Car or audio equipment repairs, for example, have high product content, while the services of a solicitor have a low one. Service duration may vary from the length of a phone call as when a public telephone is used to an extended period covering weeks or months.

Reliability	Consistency of programme and dependability	➢ Accuracy in invoicing ➢ Keeping records completely
Responsiveness	Willingness of employee to provide service	➢ Calling customers back quickly ➢ Giving prompt service
Competence	Having required skills and knowledge to provide service	➢ Knowledge and skill of personnel
Courtesy	Politeness, respect, consideration	➢ Consideration for consumer ➢ Neat appearance of contact personnel
Communication	Keeping customers informed	➢ Explaining service ➢ Explaining cost of service ➢ Assuming customer problems will be dealt with

Understanding/ Knowing the customer	Understanding customer's needs	➤ Learning customers specific requirements ➤ Providing individualized attention
Tangibles	Physical evidence of service	➤ Physical facilities ➤ Appearance of Personnel ➤ Tools of equipment used to provide service

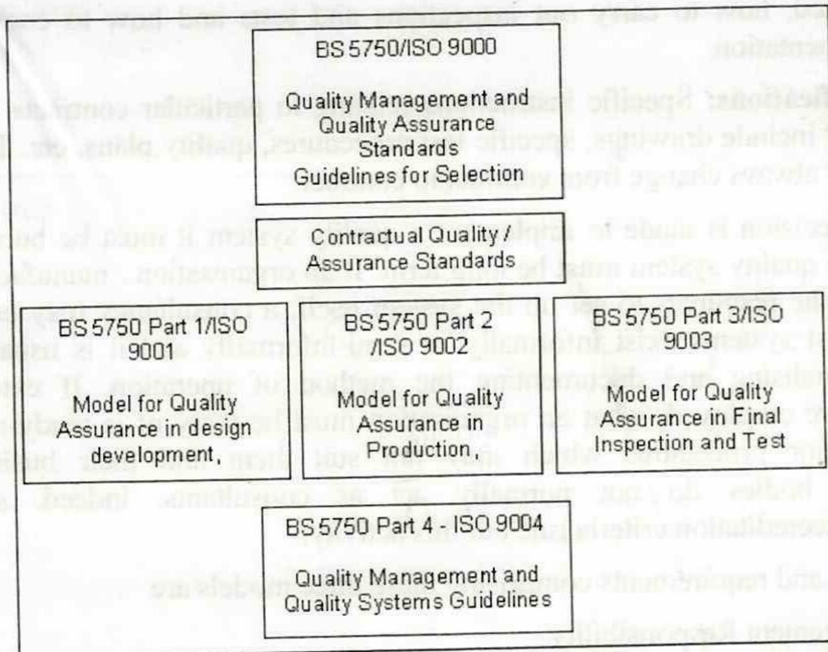
One of the key elements of the ISO 9004-2 standard is the requirement that a company's service be defined with specific characteristics documented such as dependability, capacity, safety, security, courtesy and accuracy. The standard also addresses the importance of employee involvement and motivation in providing quality service, and vesting a service quality loop which enables internal and external measurement of customer satisfaction.

ISO Manual of Standards

The series of standards ISO 9000, 9002, and 9003 provide models for three levels of quality assurance.

- ISO 9000 (BS 5750: Part 1) provides the model for an organization which is involved in the management or design as well as in producing its product or service. Thus in service organizations or organizations providing professional services where the service where the service offered is designed to meet the specific needs of the customer, ISO 9000 is the applicable model.
- ISO 9002 (BS 5750: Part 2) is the appropriate model for many manufacturing industries producing standard items or service organization such as retailing outlets providing a standard service.
- ISO 9003 (BS 5750: Part 3) is only used for organization whose product is already manufactured and is simply inspected before being supplied.

AQAP 1-3	NATO Requirements for an Industrial Quality Control System
AQAP 4-2	NATO Inspection System Requirements for Industry
AQAP9-12	NATO Basic Inspection Requirements for Industry
BS 4778: 1986	Part 1 [ISO 8042]: Quality Vocabulary: International Terms
BS 4778: 1979	Part 2 Quality Vocabulary: National Terms
BS 4891:1972	Guide to Quality Assurance
BS 5750	Quality Systems
1987	Part 1: Specification for Design, Development, Production, Installation and Servicing
1987	Part 2: Specification for Production and Installation
1987	Part 3: Specification for Final Inspection and Test
1990	Part 4: Guide to the Use of BS 5750: Parts 1, 2 and 3
BS 6143	Guide to the Economics of Quality
BS 7229: 1989	Guide to the Quality Systems Auditing
ISO 9001: 1987	Quality System – Model for Quality Assurance in Design, Development Production Installation and Servicing
ISO 9002: 1987	Quality Systems – Model for Quality Assurance in Production and Installation
ISO 9003: 1987	Quality Systems – Model for Quality Assurance in Final Inspection and Test
BS7850:1992	Total Quality Management



How does it operate?

ISO 9000 requires evidence at all stages of a process, from raw material purchases to final delivery to the customer that work is being carried out to agreed standards. In order to achieve that objective, the company has to produce a quality manual which guides its users to relevant documents which indicate what is expected at each stage of production. Often companies select to draw up a defined quality system in three stages.

- **Quality Manual:** A policy document saying what the company intends to do to ensure that a system exits and will guarantee consistent product quality. This is normally a document which hardly ever changes and which contains little specific detail of how the result is achieved. As such, it can be sent out to customers to give them assurance that they will receive what they request.
- **Departmental Procedures:** Detailed procedures which are instructions to operators and inspectors giving instructions on how equipment is to be

operated, how to carry out inspections and tests and how to complete documentation.

- **Specifications:** Specific instructions relating to particular contracts. This would include drawings, specific test procedures, quality plans, etc. These nearly always change from contract to contract.

If a decision is made to implement a quality system it must be borne in mind that the quality system must be long term. If an organisation / manufacturer do not have the resources to set up the system itself, a consultancy may be the solution. Most systems exist informally or semi-informally and it is usually a case of formalising and documenting the method of operation. If external consultants are employed, what an organisation must be wary of is ready-made work processor procedures which may not suit them and their business. Certification bodies do not normally act as consultants, indeed, some government accreditation criteria rule out this activity.

The elements and requirements comprising these three models are

- Management Responsibility
- Quality system
- Contract Review
- Design Control
- Document Control
- Purchasing
- Purchaser Supplied product
- Product Identification (and traceability) (Parts 1 and 2 only)
- Process Control
- Inspection and testing
- Inspection, Measuring and Test Equipment
- Inspection and Test Status
- Control of Non-conforming Product
- Corrective Action
- Handling, Storage, packing and Delivery
- Quality Records
- Internal Quality Audit
- Training

- Servicing
- Statistical Techniques

Management Responsibility

The commitment of an organisation to a quality system must be clearly indicated within a declared quality policy which is documented and included as an integral part of the quality policy manual. This normally takes the form of a statement signed by the chief executive or equivalent, which demonstrates commitment to providing products or services than meet the 'fitness for use' definition of quality. Typically, one person is nominated as the management representative for quality. This appointment must have sufficient overall responsibility and authority to coordinate, implement, maintain and monitor the quality system.

Quality System

This stipulates that an organisation must establish a fully documented quality system which, on implementation, ensures that product or service conforms to specific requirements. Typically, the quality system comprises

- Development of a quality manual
- Assessment of resources required to attain the desired quality
    - Process Facilities
    - Inspection, Measuring and Test equipment
    - Skill Levels
- Clearly defined acceptance and rejection criteria for all features and requirements for the product or service
- Quality records to be used for verification purposes.

The quality system should extend beyond traditional quality control activities and include all functional areas.

Contract Review

The purpose of the contract review is two fold.

- It provides a record of the customer's requirements, highlighting differences between the customer's statement of requirements and the product or service to be supplied
- It enables a supplier to assess capability to meet the customer's requirements. Contractual requirements must be evaluated against current resources to ensure that the capability exits to undertake the specific order.

Design Control

If an organisation has responsibility for design and development of a product, a procedure should be documented which details the sequence of design and development activities involved in the manufacture / provision of a new or updated product. It is important that those responsible for design communicate with other functional areas influenced by product design. The input of quality assurance, Purchasing, Engineering, Production Planning and Personnel is essential to the coordination of activities which will contribute to the achievement of contractual obligations and delivery schedules.

Suitably qualified personnel should be responsible for carrying out and documenting the following activities.

- Design review meetings
- Testing or demonstrating to prove design
- Applying alternative calculations to the design
- Comparison of new design against existing product.

Document Control

The documentation associated wit the requirements of the quality system must be included in a document control procedure and is composed of

- Manuals
- Instructions
- Operational documents
- Quality plans
- Specifications and drawings
- Records and reports

Before formal approval and issue, these documents have to be reviewed for adequacy by authorised personnel. Ongoing review is also required to ensure that the current status of documentation is distributed to relevant personnel. Records of distribution must be maintained and review of document adequacy should be included in audit procedures (internal audit – management review)

Purchasing

The control of materials and products received by an organisation will involve both the purchasing and acceptance procedures to ensure that all specified requirements are being met. Consequently, the evaluation of supplies and sub-contractors is an essential element in the development of confidence in a supplier. The selection of suppliers and subcontractors is likely to encompass the following.

- Past performance (e.g. quality, pricing and delivery)
- Adequate facilities
- Supplier's quality system
- Accreditation of supplier to an appropriate quality system

The company's organisation should enable clear communications between the purchasing function and other functional departments such as: design, planning, quality assurance, engineering, maintenance etc.

Purchaser Supplied Product

This sub-clause is applicable to those organisations who receive products or materials from a customer form a part of the product ordered by that customer. These customer-supplied goods are, in effect, owned by the customer and procedures should be put in place to ensure that

- No damage is caused to the product or materials
- The product or materials are clearly identified
- The product or materials are maintained
- The product or materials are stored in a segregated area
- The product or materials are subject to special handling and usage.

Product Identification and Traceability

Procedures must be established to enable the identification of the product at all stages in its progress in production, delivery and installation. The documentation associated with identification and traceability includes the specification and drawings for a specific contract. During the process of manufacture, works order documentation must accompany each item or batch. Such documents include.

- Quality plans
- Work description
- Parts lists
- Work-in-progress time sheets
- Batch cards

Process Control

To ensure the effective control of the production process, the process itself must be subject to clear and specific planning. This involves decisions being made on how the contract specification can be translated into the actual product using the resources available. Such resources include:

- Manpower and skill levels
- Process equipment
- Inspection measurement and capability

All process operations should be specified in comprehensive, documented work instructions.

Inspection and Testing

Inspection and test procedures should be established to provide the highest possible level of confidence at low cost. This should incorporate the cost of passing reject-status work to subsequent process stages. The procedures should, therefore, incorporate the inspection strategy to be adopted and the techniques and equipment to be employed for checking designated product characteristics. As the quality system should be based on prevention, the inspection activities outlined are related to the control process and not simply to final inspection or rejection of the product.

Parts 1 and 2 of ISO 900 consider the testing and inspection of materials at three stages.

- Incoming goods and raw materials
- Processing of the products
- Final inspection and testing

Inspection, Measurements and Test Equipment

As product quality conformance is indicated by inspection and test measurements it is essential that test equipment be accurate. Control of inspection and testing requires.

- Adequacy trained inspection personnel
- Suitably calibrated and controlled equipment

The frequency of calibration for each item of equipment is stated in a calibration programme which is an equipment status document highlighting the dates when calibration is due to take place and when it was carried out.

Inspection and Test Status

A procedure is required to ensure that the inspection or test status of items or batch of material or product is clearly identified. There should be control of items revealed by inspection / test to be out of compliance with specified requirements. Authorised stamping, tags, labels or various other methods of identification may be used to denote:

- Not inspected or test status
- Approved status
- Concessionary approval status (dependant on gravity of non-compliance)
- Rejected status

Control of Non-Conforming Product

Procedures are required to prevent the inadvertent use or installation of products which do not conform to the specification – their status should be identified accordingly. A non conformance report should communicate the

nature of the problem to the management representative for quality and other relevant parties. Categories of non-conformance are.

- Rework or repair to confirm to specified requirements
- Regarded
- 'Use as it is' – authorised by relevant personnel / customer concession
- Rejected

Corrective Action

When a product is found not to conform to the specific requirements, a procedure is required to ensure documentation, implementation and verification of the subsequent corrective action. A casual investigation by authorised personnel using associated documentation determines the appropriate corrective action. When agreement is reached relevant to the corrective action. When agreement is reached relevant to the corrective action, this is documented formally on the appropriate section of a non-conformance or corrective action report. The remedial action agreed upon is delegated to an individual responsible for its implementation to an agreed timescale. Corrective action procedures also form part of the internal auditing and management review procedures.

Handling, Storage, Packaging and Delivery

Procedures should be established to provide and effective means of preserving and marketing products and materials.

- Handling: The methods and equipments used for the purpose of product handling should prevent damage and deterioration
- Storage: Suitable, designated areas are required for the protection and control of products and materials which are to be sued in the manufacturing process or are to be delivered to the customer.
- Packing: The packing instructions must be in conformance with specified requirements. Relevant documentation may consider.
    - Methods of cleansing
    - Methods of preservation
    - Details of packaging
    - Methods of identification

Company responsibility may also extend contractually delivery of finished goods to a client. Effective storage must be provided if this is the case.

Quality Records

As the complete quality system is documented in quality and procedures manuals, the proof of effectiveness is to be found in the records. There must be provision of evidence of quality through records of orders, purchases, complaints, rejections, audits etc. These documents (verified documents) must be retained in a controlled filing system for a given period determined by internal criteria and contractual stipulation (for example, five years for product liability purposes). A register of all quality records must be kept by the management representative for quality and should include.

- Internal audit reports
- External audit reports
- Management review records
- Contract review records
- Procurement records
- Process control documents
- Material certification
- Inspection and test data
- Calibration results
- Statistical methods results
- Customer / supplier complaints
- Supplier approved ratings
- Non-conformance, corrective action and concession reports
- Training records

Internal Quality Audit

It is essential that there is a procedure for periodic checking of the performance to internal audit. The formalised procedure will enable management to assess efficiency and identify any weakness in the quality system or associated training. Each element of the standard should be audited each year or as circumstances dictate (i.e. changes to specifications, deficiencies identified,

etc) by personnel skilled in auditing procedures. Auditors should be appointed, wherever possible, from an area independent of that being audited. The results of each audit must be recorded in audit, non-compliance and corrective action reports. A formal audit meeting will communicate the results to the personnel responsible for the area under assessment.

Training

The success of the quality system depends on effective training of personnel. A training programme should consider

- Quality awareness and understanding
- Significance of quality
- Quality allied to competitiveness of company
- Individual role in company context
- Job role knowledge and skills
- Ongoing review of training needs

Ongoing identification, provision and review of training allows for knowledge and skill levels to be assessed against possible development within activities of the quality system.

Servicing

The servicing of a product, post delivery and installation, may constitute an integral part of an overall contract. Servicing requirements should be incorporated where applicable at the contract review state. This enables a servicing quality plan incorporating product specification, product drawings and servicing manual to be drawn up, which indicates the sequence of events in a particular serving activity. The personnel allocated to serving activities must be suitably trained and documentation relevant to their activities (service reports) must provide evidence of heading compiling with service requirements.

Statistical Techniques

The use of statistical techniques can be an effective method of evaluating level of quality capability of a given process. They may be used because of contractual requirements or as a result of internal company policy. The measurement of variation within product and process provides the data for statistical assessment of quality levels (actual and potential). The use of

statistical methods is not limited to past activity and can be used for the following purposes.

- Market analysis
- Product design
- Process control studies
- Data analysis
- Performance assessment
- Determining quality levels
- Determining inspection items
- Reliability specification

Specific statistical quality control methods include

- Frequency distributions
- Control charts
- Regression analysis
- Measures of control tendency
- Acceptance sampling
- Risk analysis
- Safety evaluation

JOINT COMMISSION INTERNATIONAL ACCREDITATION

What is accreditation and what are the benefits?

Accreditation is process in which an entity, separate and distinct from the health care organisation, usually nongovernmental, assesses the health care organisation to determine if it meets a set of requirements designed to improve quality of a care. Accreditation is usually voluntary. Accreditation is usually voluntary. Accreditation standards are usually regarded as optimal and achievable. Accreditation provides a visible commitment by an organisation to improve the quality of patient care, ensure a safe environment and continually work to reduce risks to patients and staff. Accreditation has gained worldwide attention as an effective quality evaluation and management tool.

What is Joint Commission International (JCI) accreditation, and what is JCI's relationship to the Joint Commission on Accreditation of Healthcare Organisations (JCAHO)?

JCI is a division of the JCAHO, it is a subsidiary corporation. JCI's mission is to improve the quality of health care in the internal community by providing worldwide accreditation services.

For more than 75 years, the joint Commission on Accreditation of Healthcare Originations (JCAHO) and its predecessor organisation have been dedicated to improving the quality and safety of health care services. Today, the largest accreditor of healthcare organisations in the United States, it surveys nearly 20,000 health care programs through a voluntary accreditation process. JCAHO and its subsidiary are both not-for-profit US corporations.

What are the purpose and the goal of the new JCI Initiative?

Joint Commission International (JCI) accreditation is a new initiative designed to respond to a growing demand around the world or standards – based evaluation in health care. The purpose of this initiative is to offer the international community a standards – based, objective process for evaluating health care organisations. The goal of the program is to stimulate demonstration of continuous, sustained improvement in health care organisations by applying internal consensus standards and indicators. Accreditation services are based on an international framework of standards adaptable to local needs.

The following is a brief overview of the JCI program.

- International consensus standards are the basis of the accreditation program.
- The underlying philosophy of the standards is based on principles of quality management and continuous quality improvement.
- Standards identified as 'Core' must be met by each organisation that seeks to be accredited.
- The accreditation process is designed to accommodate the legal, religious and/or cultural, factors will be part of the accreditation process.
- The on-site survey team and agenda will vary depending on the organization's size and type of services provided. For example, a large teaching hospital may require a four-day survey by a physician, a nurse and an administrator, while a smaller regional or community hospital may require a two-or three-day survey.
- Joint Commission International accreditation is designed to be valid, reliable and objective. Based on the analysis of the survey findings, final accreditation decisions will be made by an international accreditation committee.

How the standards were initially developed and refined for this edition?

A 16-member international task force composed of experience physicians, nurses, administrators, and public policy experts, guided the development of the international accreditation standards. The task force consists of members from six major world regions: Latin America and the Caribbean, Asia and the Pacific Rim, the Middle East, Central and Eastern Europe, Western Europe, and Africa.

An international standards committee continues the work of the task force and makes recommendations about updates and modifications necessary for these standards to continually reflect contemporary practice.

How are the standards organized?

The standards are organized around the important functions common to all health care organizations. The JCI international task force selected a functional organization of the standards as ideal for international users. The selection was based on experiences during the previous five years in using this

approach in more than 30 countries. The applicability of this approach has been validated in accreditation surveys around the world.

The standards are grouped by those function related to providing patient care and those related to providing a safe, effective, and well-managed organization. These functions apply to the entire organization as well as to each department, unit, or service within the organization. The survey process gathers standards compliance information at this level, but the accreditation decision is based on the overall level of compliance found throughout the entire organization.

Access to Care and Continuity of Care (ACC)

- Patients have access to the healthcare origination's services based on their identified health care needs and the organisation's mission and resources
- The organisation designs and carries out processes to provide continuity of patient care services in the organisation and coordination among health professionals.

Patient and Family Rights (PFR)

- Identify, protect and promote patient rights
- Inform patient or their rights
- Include the patient's family, when appropriate, in decisions about the patient's care
- Obtain informed consent
- Educate staff about patient rights
- Establish the organisation's ethical framework

Assessment of Patients (AOP)

- Collecting information and data on the patient's physical, psychological, social status and health history
- Analysing the data and information to identify the patient's health care needs
- Developing a plan of care to met the patient's identified needs

Care of Patients (COP)

- Planning and delivering care to each patient

- Monitoring the patient to understand the results of the care
- Modifying care when necessary
- Completing the care
- Planning the follow-up

Patient and Family Education (PFE)

- Effective education thus begins with an assessment of the patient and family's learning needs
- This assessment determines not only what needs to be learned, but how the learning can best occur.
- Learning is most effective when it suits an individual's learning preferences, religions and cultural values and reading and language skills and when it occurs at appropriate points in the care process
- Education includes both knowledge needed during the care process and the knowledge needed after the patient is discharged to another care site or home.
- Effective education in an organisation employs available electronic and visual formats and a variety of distance learning and other techniques.

Quality Improvement and Patient Safety (QPS)

- Designing new clinical an managerial processes well
- Monitoring how well process work through indicator data collection
- Analysing the data
- Implementing and sustaining changes that result in improvement. Both quality improvement and patient safety programs.
- Are leadership driven
- Proactively identified and reduce risk and variation
- Use data to focus on priority issues
- Seek to demonstrate sustainable improvements

Prevention and Control of Infections (PCI)

- The infection control program may differ from organisation to organisation, depending on the organisation's geographic location, patient

volume, patient population served, type of clinical activities and number of employees

- Effective programs have in common identified leaders, appropriate policies and procedures, staff education and coordination throughout the organisation.

Governance, Leadership and Direction (GLD)

- Effective leadership beings with understanding the various responsibilities and authority of individuals in the organization and how these individuals work together.
- Those who govern, mange, and lead an organization have both authority and responsibility. Collectively and individually, they are responsible for complying with law and regulation and for meeting the organization's responsibility to the patient population served.
- Over time, effective leadership helps overcome perceived barriers and communication problems between departments and services in the organization and the organization becomes more efficient and effective.
- Services become increasingly integrated.
- In particular the integration of all quality management and improvement activities throughout the organization results in improved patient outcomes.

Facility Management and Safety (FMS)

- Reduce and control hazards and risks
- Prevent accidents and injuries
- Maintain safe conditions. Effective management includes planning, education and monitoring
- The leaders plan the space, equipment and resources needed to safely and effectively support the clinical services provided
- All staff is educated about the facility, how to reduce risk and how to monitor and report situation that pose risk
- Performance criteria are used to monitor important systems and identify needed improvements

Staff Qualification and Education (SQE)

- Recruiting, evaluating and appointing staff are best accomplished though a coordinated, efficient and uniform process.
- It is also essential to document applicant skills, knowledge, education and previous work experience.
- It is particularly important to carefully review the credentials of medical and nursing staff because they are involved in clinical care processes and work directly with patients.
- Health care organisations should provide staff with opportunities to learn and advance personally and professionally

Management of Information (MOI)

- Identifying information needs
- Designing an information management system
- Defining and capturing data and information
- Analysing data and transforming it into information
- Transmitting and reporting data and information
- Integrating and using information

ISO CASE STUDY

ISO 9002 CERTIFICATION FOR A HOSPITAL- AN ILLUSTRATIVE CARE

Apollo Hospitals at Hyderabad

This is a case study from Apollo Hospitals at Hyderabad, which was awarded the ISO 9002 certification in August 1998. The case narration compliments the chapter, Hospitals and ISO 9002 certification, and includes the procedural details and implementation process. It clarifies some of the statements and terminologies, by way of illustration from the experience of Apollo Hospitals at Hyderabad. This case brings about a better understanding and provides wider knowledge about the ISO 9002 certification.

The Certification

KPMG Quality Registers of New Jersey in USA awarded the certificate. The registrar Accreditation board of USA accredits KPMG. The scope of certification comprised Management of Apollo Hospitals, Hyderabad, for health care and treatment of patients, through various super specialties and specialties, nursing, paramedical and lab services, patient frontline services and administrative services.

The quality audit encompassed 47 medical and 12 non-medical department involving 1200 personnel. The three-tier documentation consisted of one quality manual, 60-quality procedure manual (with 117 quality procedures and 285 test methods) and 30 quality work instruction manuals (with 332 work instructions). The certification includes Apollo Emergency Hospital, which is a trauma centre located in different part of the city. This facility was achieved through the concerted effort of every single individual, over a period of nine months.

Quality System Requirements

Illustration 1: Quality Policy in a Hospital

Apollo Hospitals at Hyderabad

'Apollo Hospitals, Hyderabad, is committed to provide health care of international standard with a human touch, at optimum cost, and to bring in continuous improvement in line with evolving patient needs.

'This we will achieve by a holistic approach and the integrated teamwork of constantly learning and committed professionals, interfaced with state-of-the-art technology'.

Illustration 2: Quality Objectives in Hospital

Apollo Hospitals at Hyderabad

- To provide multi-and super-specialty Medicare under one roof by adopting a holistic approach.
- To provide health care based on state-of-the-art technology and expertise, at optimum cost, ensuring value for money.
- To provide a delightful ambience and excellent medical care with a human touch, by integrated teamwork and effective quality systems, with monitoring and feedback.
- To carry out continuous up gradation of technology and human resource development activities in a congenial and safe environment.
- To be an environment-friendly, socially and ecologically-conscious organization.

Illustration 3: Quality Policy in the Service Area of a Corporate

Dr Reddy's Laboratories Limited, Investor Cell

- Prompt service – We believe in.
- Reliability – The core value.
- Committed employees – Our strength.
- Complete investor strength – Our sole aim.

Illustration 4: Quality Objectives in the Service Area of a Corporate

Dr Reddy's Laboratories Limited, Investor Cell

- To effect transfers within 15 days from the date of lodgement of duly completed transfer deeds.
- To address any query pertaining to the company from an investor or any other agency within three days.

- To encourage investors to hold shares in depositories and ensure that 2 per cent of the total number of individual investors opt for dematerialization every six months.
- To keep investors informed about the performance of the company and other developments, within 24 hours of the Board's approval.
- To provide a hospitable reception when the investor visits the investor cell.
- To enable employees develop skills and confidence levels through frequent training programmes and refresher courses.
- To enable employees to engage in different activities, in order to break the monotony, and to rotate jobs at least once in twelve months.
- To provide modern modes of communication and information technology facilities.
- To optimize the consumption of stationery and other consumables.

Illustration 5: Quality Manual

One part of the quality manual is quality procedure. The procedure specifies what has to be done, by whom, how it is to be done, and where and when. This is used for the overall planning and administering of activities, which have an impact on quality.

Another part of the quality manual is work instructions. The instruction must clearly

- Describe the work.
- Specify the correct sequence of activities in the work.
- Indicate the materials and equipment that must be used.
- Indicate the specific environmental conditions that should be ensured, such as the dust level, cleanliness, etc.
- List the standards and codes of practice which must be complied with.

Along with quality procedures and work instructions, the quality manual should include a description or statements regarding.

- The scope of the work
- The affected service, activity or process
- Actions required and persons involved
- Records which have to be maintained
- The competent authority who is authorized to sign and initiate procedures
- Document issue locations and control procedures.

The three-tier documentation in Apollo Hospitals at Hyderabad consisted of one quality manual, 60 quality procedure manuals (with 117 quality procedures and 285 test methods), and 30 quality work instruction manuals (with 332 work instructions).

Illustration 6: Contract Review

This contract is called the in-patient Guide. It is an ISO numbered document, running to 12 printed pages, and is given to every in-patient after registration is completed. The guide starts with a welcome message from the Managing Director. The first chapter, know your Hospital lists where each facility is located in the Hospital campus, in an orderly manner – from the basement to the fourth floor and the annexe building. For example, the first floor houses the operation theatre complex, which includes the operation theatre complex, which includes the

- CSSD, Intensive Care Units
- Nursing Superintendent's Office
- Guest Relations Office
- ISO Office
- Nephrology Unit
- Patient's rooms, number wise.

Illustration 7: Document and Data Control

The quality manual, the quality procedure manual and work instructions are controlled by the Documentation Control Officer. This person is generally of the level of a manager, not necessarily qualified in medicine.

Illustration 8: Control of Inspection, Measuring and Test Equipment

Decide the measurement accuracy required; schedule the test equipment at predetermined dates for calibration to keep up with declared standards; specify the calibration procedure to be followed, the acceptance criteria and the actions if the result show deviation from standard. Do the calibration and testing in acceptable environmental conditions; whenever there is difference in calibration, investigate the immediate past uses for undesirable implications; separate physically or by marking the equipments which are calibrated. In all activities ensure that the equipment is accurate.

Illustration 9: Control of Nonconforming Products

Control is imposed for the purpose of preventing products or services from being accidentally used. Where such use has been identified, the Hospital should designate the authority who will conduct the review and take appropriate action. The review will decide on whether to repeat the treatment, to take preventive measures for any retrograde stages, to keep under observation or to accept it with or without any action.

Few examples of non-conformance:

- A doctor sends a requisition slip to the laboratory for certain tests to be conducted, and the requisition slip does not contain the doctor's signature.
- The laboratory not having the user's manual for the equipment used in the laboratory.
- Drugs in the pharmacy which are to be kept in cold conditions being let to stay in open.

Illustration 10: Internal Quality Audit

Internal quality audit is carried out to make sure that

Appropriate procedures are in place, Documented procedures are being followed, and corrective actions are being taken, as indicated in the report.

The purpose and objective of the internal quality audit are

- To determine the conformity of system elements with the specified requirement,
- To determine the effectiveness of the implemented quality system in meeting the specified quality objectives,
- To provide an opportunity to improve the quality system, and
- To provide information for management review.

Internal quality audit can be conducted as a routine examination, as a consequence of specific incidents, such as a variation or deterioration in service quality, as a consequence of specific incidents, such as variation or deterioration in service quality, as follows-up for the evaluation of the quality system, or for meeting regulatory requirements.

Illustration 11: Application for Certification

The market value of the certificate is related to the competency of the certifying agency, which is dependent on the system of accreditation.

Accrediting institutions lay down stringent requirements which the certifying agency has to fulfil. These are:

- The process for certification followed by the agency
- The process for acquiring lead assessors
- The process for ensuring an assured quality of service
- The system for maintaining their records.

Few of the accreditation bodies are:

- The National Accreditation Council for Certifying Bodies of the United Kingdom (NACCB)
- The Raad Voor de Certificate of The Netherlands (RVC)
- Registrar of the Accreditation Board of USA (RAB)

An indicative list of the certification agencies in India are:

- The Bureau of Indian Standards
- The Indian Register Quality systems
- TUV (India) private Limited

- The Standardization Testing & Quality Certification Directorate
- The Bureau Veritas Quality International
- KPMG Peat Marwick
- Det Norska Veritas

The choice of the certifying agency will depend on the management's perception of the market value of the certificate, the image of the certifying body, and the objectives for obtaining the certification.

Illustration 12: A Checklist for Inspection, Measuring and Test Equipment

- Refer to national or international standards for specified calibration
- Convert the calibration to national standards wherever possible known
- Make the calibration procedures effective
- Identify all instruments and test equipments separately
- Store and handle the equipments in a manner appropriate to its sensitivity
- Introduce a formal system to calibrate equipment at specified intervals of time
- Maintain calibration records
- Adjust the frequency of calibration on the basis of objective data and calibration activities
- After the equipment is required, take steps to ensure that recalibration is carried out to restore its calibration status
- Work out a procedure for the revalidation of previous measurements when equipment is found to be out of calibration.

UNIT 3

QUALITY ASSURANCE

Quality assurance (QA) recognizes that inspection is not enough in itself to remedy quality problems. It focuses on procedure compliance and product conformity to specification through product and operation management tracking. Today, QA has become synonymous with the British Standard BS 5750 or its international equivalent ISO 9000. BS 5750 defines a quality systems standard, and this is important in that is relates to a system and not a product. The standard sets out a framework by which a management system can be implemented such that the needs of the customers are fully met.

Quality assurance is based on the principle of prevention of quality problems rather than detection of these problems as it is in quality control. Inspection and quality control are still important tools, but wee need more planned and systematic actions than these in order to prevent quality problems recurring. Quality assurance activities consider:

- How an organization develops policy in respect of quality
- The allocation of responsibilities within the organizational structure
- Procedures used to carry out the needs of the business
- The standards to be attained in the workplace
- The documentation required to demonstrate both the operation and maintenance of the system and the attainment of quality.

Quality Assurance through Record Review and Medical Audit

Quality assurance is achievable through an ongoing evaluation of patient care which would assure the hospital that all that was done for the patient was done to justify diagnosis, treatment and outcome and to pinpoint inadequacies in medical care for rectification for the future cases.

Quality of care measurement generally involves two basic concepts:

- The quality of the general care relating to care services incorporating organisational and the men-materials-money-machine inputs
- The other relating curve service or the quality of the art-of-care

A Review of the Process Content and Outcome

There are a number of different strategies for assessing the quality of medical care. Quality assessment methods differ, for example, in time frame for review (prospective, concurrent and retrospective), in data-gathering methods (record review, abstract, observation and interview) and in the categories of criteria (structure, process and outcome).

Process measures are simply those measures that evaluate what a provider does to and for a patient. They mean how well a person is moved through the medical care system, in a 'Micro' sense (e.g. from arrival to departure at an emergency room to outpatient clinic). Outcomes reflect what happened to the patient in terms of palliation, cure, rehabilitation or death.

The term quality assurance is of recent origin which has replaced the term 'Medical Audit' which basically depends upon the study of medical reports in retrospect. When the concept of medical audit originated, it was through that a review of medical records was expected to answer the following questions.

- What did the patient have?
- What was done for him?
- Was something that was required to be done, not done? If not, why not?
- Was the treatment optimum? If not, why not?
- Was the outcome satisfactory? If not, why not?

Analysis of the above questions provides the means for judging whether whatever done for the patient was done to justify diagnosis, treatment and end-results and whether it was done in the best interest of the patient. The process has also been envisioned as a self motivated continuing education process for the physicians and the findings of the quality assurance audit as spring boards for remedial action.

Quality is defined as adherence to standards and criteria that are based on current knowledge and sound experience. Quality assurance is a planned programme which objectively monitors and evaluates the clinical performance of all practitioners, which identifies opportunities for improvement and which provides a mechanism through which action is taken to make and sustain those improvements.

The concept of medical audit originated in the USA. The Joint Commission on Accreditation of Hospitals – JCAH (a joint body formed by American College of Surgeons, American Medical Association, American College of Physicians and American Hospital Association) enforced the condition for accreditation that each of the hospitals should have an ongoing medical audit for assuring a satisfactory level of Medicare, Medicaid, blue and cross and blue shield programmes by the US federal government has brought most hospitals under the ambit of medical counties where the regulation of standards of medical care is carried out voluntary by a system of accreditation of hospitals.

In India, the importance of medical audit for quality assurance is gradually being grasped by some hospitals, most of which are teaching hospitals. Medical audit conducted as a pioneering experiments at the All India Institute of Medical Sciences and Safdarjang Hospital not only brought out many shortcoming to the fore, but the presentation of the findings to the physicians and surgeons was a revelation to them, whereas one study was only retrospective to highlight problems ad shortcomings, the other one which was carried out prospectively proved to be of great value as accepted by the hospital's community posed in the beginning of this section.

Purpose of Quality Assurance

The purpose of the quality assurance programme is to:

- Help patients and potential patient by improving quality of care
- Assess competent of medical staff, serve as an impetus to keep up to date and prevent future mistakes
- Bring to notice of hospital administration the deficiencies and in correcting the causative factors.

The process can also help to exercise a regulatory function, restricting undesirable procedures. This cannot but help the medical staff to improve upon their clinical and professional judgement. By timely verification, it cannot but help provide assurance for future actions so that better methods should be used.

Professional Review for Quality Assurance

Professional reviews, e.g. death review, radiographic review, tissue review and chart review attempt to evaluate the physicians and hospitals

performance. Scrutiny of all fatal care documents can be sued to adjudge the professional competence of the medical staff and provide useful feedback fro policy planning. The aim of the radiographic review is to ascertain whether screening of radiographic films could be avoided or reduced if a complete medical examination, history taking and analysis were carried our and also to find out whether any radiographic examinations were warranted but not carried out. Tissues reviews are done to answer queries whether surgery in certain cases was really necessary. Introduction of tissue reviews in certain hospital have minimised the rate of unnecessary appendicectomies, hysterectomies, tonsillectomies and other injudicious surgical interventions. The periodic chart review is another method to evaluate the performance of the medical staff in rendering efficient medical care. The review board or committee includes the pathologist, radiologist and heads of clinical services besides the administrator, who all study medical charts and making recommendations on all phases of medical care activities.

Method

A quality assurance programme can be either concurrent or retrospective. Concurrent evaluation provides opportunities for simultaneous corrective action, whereas the retrospective evaluation acts as a continuous and ongoing self improvement process.

Concurrent or On-the-Spot Review

A hospital administrator uses this method routinely so far as non-clinical aspects of hospital care are concerned, in the form of daily and periodical administrative rounds. Nevertheless, this can also profitably form part of the ward round of clinicians and consultants. Because it is done while the patient is still in the ward, it overseas things as they happen form day-to-day. As the round progresses, the visiting clinician should look into the patient's case records, enquire from each patient about his or her progress, treatment and diet, peruse nurse's report book and treatment book and even inspect the housekeeping activities and sanitation of the ward and other aspects connected with patient care. Any lacune discovered during such round are usually corrected on the spot or instruction passed to appropriate personnel for remedial action.

The discharge analysis function (Carried out in the medical records department) may be more useful if moved to the floor of the wards and

incorporated into the ongoing concurrent review process. Failure to verify verbal orders given by physicians is often the source of problems like medication errors and ordering of duplicate laboratory tests. These could be monitored by the discharge analysis of the records department or even the senior ward sister. The analysis of records immediately after discharge in the ward itself can prove fruitful in obtaining the final diagnosis from the physician before the record arrives in providing accuracy of information in the medical record itself, the most frequently used data source in the hospital.

The Retrospective Review

In many instances where people are keen to carry out such an evaluation, the whole process has been gone through with no preparation and in the most haphazard manner. Needless to add, many quality assurance programmes requires a step by step approach to derive the desired result.

Prerequisites of Retrospective Audit: There are three fundamental prerequisites that need to be fulfilled before the programme is instituted:

- Good medical records
- Establishment of criteria for diagnosis, investigations and treatment
- Cooperation and involvement of medical staff

A good medical record of each patient it is imperative that the patient's illness and all events connected with it while he or she is in the hospital are lucidly and faithfully recorded. In a general hospital, medical records are generated at, or by:

- Admission office
- Doctors' notes
- Nurses' reports
- Supportive services – Laboratory investigation reports, radiographic reports and special investigation reports.

The medical record has to be sequentially filed and a 'face-sheet' affixed to each case record before it is presented to the evaluation committee. This will require services of a medical records librarian, but it is not difficult to learn by other paramedical staff. The quality assurance programme depends on completeness of theses records.

Establishment of criteria for diagnosis, investigations and treatment. This is the most important aspect to establish norms for comparison. A high-power committee of senior clinicians and consultants should be convened to identify and enumerate the various characteristics of medical care that need to be measure, and then arrive at a consensus in affixing standards and criteria for each.

Priority is given to those elements of care and services that have the greatest potential to harm patients or deprive patients of significant medical benefit if not carried out correctly.

In measuring quality, 'process' measurement involves the methods which the organization uses to provide services, i.e. 'is the process proper or performed correctly'. It involves comparison with standard procedures and determination of relative values when standards do not exist or are not applicable. Some o the sample process quality measurement are written procedures for the care of isolation patients, identification procedures for patients going to surgery, staffing schedules being posted, sterile techniques being maintained in the operating room, and contraindicated lined tagged appropriately.

Certain categories of data are de facto indicators of substandard care (e.g. failure to treat patients with severe hypertension, surgery for cataract yielding a normal lens).

Variations from standards and criteria are judged as justifiable when peer review attributes the variations to unique aspects of patient's condition or other factors beyond the control of the hospital or practitioner.

Variation from standards and criteria are judged to be unjustifiable instances of substandard care when the variations are attributed to failures in hospital support (e.g. inadequately trained staff or insufficient equipment) or to the concerned practitioner's poor performance or lack of knowledge.

Some Standards and Criteria

Example of various norms and standard generally accepted in most hospitals are as follows.

- **Gross Death Rate**: Ratio of total deaths to total discharges. **In general** hospitals, it is about 3 to 5 per cent.

- **Net Death Rate** (Institutional deaths): Number of deaths occurring 48 hours or later after admission. It does not generally exceed 2.5 per cent.
- **Anaesthesia Death Rate**: For deaths which can be definitely attributed to anaesthesia, even in circumstances beyond control the ratio may be 1:5000 anaesthesia.
- **Postoperative Death Rate**: Death occurring within 10 days after an operation (nonspecialised, general surgery) – 1 per cent.
- **Maternal Deaths Rate**: Ratio of maternal to obstetrical discharges – 0.25 per cent.
- **Neonatal Death Rate:** Ratio of deaths among new born infants to total births –2.0 per cent.
- **Autopsy Rate:** Ratio of autopsies carried out to total hospital deaths – 10 to 15 per cent (desirable).
- **Hospital Infection Rate**: Less than 4 per cent of all admitted cases.
- **Postoperative Infection Rate**: Ratio or postoperative infection to total number of operations perform-1 to 2 per cent.
- **Caesarean Section Rate**: Ratio of Caesarean sections performed to total number of births –10 to 15 per cent.
- **Readmission and Recurrence Rate**: There is no specific data available for this.

It may not be possible or even desirable for the committee to lay down norms for every and all types of cases. Therefore, it can devote attention to some, or more, of the following, either simultaneously or by rotation.

- Short-stay cases (say, 3 days or less)
- Long-stay cases (say, 20 days or more)
- Specific disease groups, e.g. gastrointestinal, caesarean section, 'acute abdomen', appendicitis, fractures, head injuries and so on
- Specific disease groups or operations carried on over a specific period
- Cases of increased incidence of a particular disease or disease group
- Cases where postoperative complications have arisen
- Cases where hospital infection has set in, etc.

Agreement on Standards

Once the criteria are developed for specific diagnoses, conditions or procedures by a committee of senior medical staff it must be reviewed and agreed upon formally by the entire medical staff.

Standards as a measure of quality may either be established voluntarily or imposed by law. There is a need for professional bodies active in the field of hospital administration to come together to establish them based upon current state of medical knowledge's, equipment, technology, methods and constitute the hospitals. Voluntary standards constitute the hospital's desire to serve to the best of its ability in a safe and effective manner striving to reach a high level of service.

Securing the full co-operation and involvement of medical staff: The doctors and nurses must be prepared to subject themselves to evaluation by their own peer group. It is necessary to remove any fears from their mind and to emphasise that evaluation through quality assurance programme is not an administrative fault-finding tool. Needless to add, the evaluation committee must be scrupulously honest and impartial in their judgement, remembering all the time that the aim is to improve patient care.

In addition to being fully accepted by the professional staff, a quality assurance programme must be fully supported by the organization or leadership of the institution.

In most cases, however, it is difficult for the medical board to control the activities of the staff. This difficulty is manifested by delinquent, inadequate entries into medical records and poor attendance at committee meetings because of the traditional reluctance of medical staff to enforce sanctions against colleagues. This reluctance is a major contributor to institutional failure to take corrective action against professional deficiencies.

Focus Group

On method of collecting and using the valuable precautions of physicians as a primary source of productive topics is the creation of a focus group in the hospital.

A focus group discussion is an informal discussion convened for the specific purpose of identifying issues and attitudes. Great attention is not

necessary for most focus groups, the purpose of which is to initiate, isolate and verbalise specific areas to be submitted to further study and action

Discussing among practitioners, administrators and department heads can become a systematic part of the problem identification. Such focus groups, purposely formed and convened by the quality assurance coordinator and other suitable person for the express purpose of identifying issues for study, provide an effective and inexpensive problem identification method that can be instituted by a hospital of any size.

Internal or External

External quality assurance is seen as being concerned with the setting by independent outside authorities of explicit standards of services over wide areas of health care system, which can then be checked by independent assessors of the kind practiced by JCAH in the USA and equivalent bodies in Australia, Canada and the Netherlands.

Internal quality assurance is seen as essentially a local exercise, whereby the activities of physicians and surgeons are subjected to a confidential review by their peers designed to improve patient care and encourage professional self-evaluation.

Quality Assurance Committee (QAC)

The next step is to form the committee which would meet periodically to carry out the evaluation. The committee should consist of the following.

- Medical administrator
- Two senior clinicians
- Pathologist
- Radiologist
- Nurse administrator (Matron)
- Medical records Officer – Secretary

Additional personnel such as super-specialties and consultants can be co-opted on the committee as and when required.

A major key to productive results is to assign specific functions to the QAC should include, but need not be limited to the following.

- Coordination

- Collecting information
- Consider activities that should be related, e.g. Quality appraisal and continuing education
- Communicate actions of hospital authority groups

➢ Information

- Provide a centralised source of reports to the board
- Suggested need for intervention to hospital authority groups

➢ Planning

- Establish priorities

➢ Prodding

- Insist on effective, productive quality appraisal efforts from all hospital components

➢ Consultation

- Provide specific assistance, usually through the coordinator

➢ Response

- Internally, acknowledge issues of important to individuals and departments when suggesting high priority areas for immediate attention
- Externally, provide the organisational home for responding to quality requirements of external agencies, if any, e.g. medical companies.

➢ Search for expertise

- Operate openly, not behind closed doors seek out the specific clinical and/or management expertise necessary to reach sound conclusions.

➢ Follow-up

Quality Assurance and Costs

It is important to note that physicians will often be most conscious of those instances where resources were too limited to meet patient's needs. Thus,

they will argue strongly for more resources to provide better quality of care, but the costs will be higher.

Administrators, on the other hand, may have pressures on them to keep costs form rising and hey will eliminate either harmful or inefficient care before considering increasing costs to improve quality through new services.

Quality assurance programmes to be successful will need to meet both sets of needs. Institutions which are sensitive to theses two sides of the cost/quality dilemma will most likely be able to achieve some of each of the desired goals.

UNIT 4

QUALITY AUDIT AND EVALUATION OF HEALTH CARE SERVICES

Quality System Assessments

An assessment of an organisation's quality system is a formal appraisal of that system and is carried out to establish to what extent the system meets the criteria specified in a quality standard or a quality assurance scheme (ISO 9000 is one such quality system standard). The assessment is conducted by a body which is certified under the National Accreditation Scheme. It involves a documentation review and a company visit to determine if the quality management system:

- Exists
- Is correctly operated and maintained
- Is effective

First, the quality system must exist in a documented form, typically a quality manual and operating procedures. Second, there must be evidence in terms of records that the system has been implemented and is being operated correctly and according to the documented procedures. Third, the quality system must be effective in terms of.

- Early detection of defective material
- Analysis of quality problems
- Improvements made in existing processes, products
- Benefits being identified

During assessment, the assessor seeks evidence of

- Clearly defined responsibilities and authority
- Documented procedures, instructions and controls
- Knowledge and understanding of responsibility, authority, procedures and instruction s
- Correct operation of procedures by the authorised and responsible personnel

- Adequacy of personnel, equipment, facilities and general resources
- Effectiveness of the system when correctly operated.

ISO 9000 requires a management system which will ensure that the customer's specification requirements are met. A management representative has to be appointed who shall have defined authority and responsibility for ensuring that the requirements of the standard are implemented and maintained. In other words, there has to be a focal point for the whole quality system; somebody who will manage and coordinate the system on behalf of the company.

1st party	Assessment by company itself to ensure compliance with requisite standards for a contract.
2nd party	Intermediate assessment by a major purchasing body of suppliers, policies and procedures to ensure conformity to an accepted standard.
3rd party	Assessment carried out by an independent certifying body which does not itself trade with the company. Assessment of applicant's quality management system and subsequent

Quality Auditing

If an organization wishes to become accredited to a quality system standard such as ISO 9000 or is already approved to a quality system standard such as ISO 9000 and requires a periodic check to establish continuing compliance, it must undertake to carry out an audit. The quality assurance audit is an objective evaluation of the effectiveness of the quality programme and its component parts. It is a procedure to verify facts, the purpose of which is into to control but to confirm whether or not we have control. The true quality audit provides an index which can be used as a measure of the quality system and as a measure of quality and its shifts and trends with time. An audit and then provide information that will aid in taking intelligent action. British Standard (ISO 8402) defines a quality audit as:

> 'A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether theses arrangements are implemented effectively and are suitable to achieve objectives'

A well planned audit programme should result in management action. Such action may result in modifying policies, systems and procedures to ensure that a desirable level of product or service quality is achieved with economic use of resources. Auditing is a discipline devoted to the establishment of facts. It is not an inquisition of people. Audits must be reported constructively to achieve maximum improvements in the total quality programme. The audit conclusions must be communicated to an appropriate level of management for action. Objectively can best be achieved if the group responsible for checking, inspecting or otherwise verifying that an activity has been correctly performed, is independent of the group directly responsible for performing the specific activity.

Purpose of Auditing

Several specific purposes of internal audits are given below. When such audits are adequately supported to properly conducted, the results will provide valuable data to:

- Assess the effectiveness of quality assurance activities and operations throughout the company by means of a planned audit programme
- Ensure compliance with company quality policies, systems and procedures.
- Measure the degree of effectiveness of quality systems
- Evaluate the effectiveness of people in the implementation of quality plans
- Optimise quality / cost relationship
- Identify quality weakness that might result in a crisis
- Provide information or major changes and accelerate the evolutionary process of quality improvement
- Promote understanding between departments.
- Contribute to technology transfer
- Communicate to management
- Reduce customer complaints

Types of Audits

The subject matter of quality audits extends across entire spectrum of the quality function, but the bulk of the auditing is carried out under the following categories.

- **Audit of Policies and Objectives:** the scope of this audit extends to the business aspects of the company's quality activities as well as the technological aspects. The standard used to judge the adequacy of quality polices and objectives is a mixture of past performance of competitors and of subjective judgement.
- **Audit of Performance Against Company Objectives:** Normally, a review based largely on the data presented by the executive reports on quality. The reviews are conducted by upper management, the usual frequencies being quarterly or monthly.
- **System Audit:** This is an audit of the quality manual to ensure that it meets the requirements of the ISO 9000 series of standards.
- **Compliance Audit:** This is an audit to determine if the implementation follows the procedures, work instructions, quality plans, etc.
- **Product Audit:** This determines if the product meets the specifications and the needs of fitness for use.

Conducting a Systems Audit

The auditor (the individual authorised to conduct internal audits) accepts the base system as being 'approved' and checks that is compiled with throughout:

- Confirm that the quality manual and issue status are pertinent to the audit, e.g. it is the issue which has been approved by a third party accrediting body.
- Establishing if the quality manual and other documents which prescribe the quality system are up to date
- Compile a suitable questionnaire or if the one used for the assessment is available, use that one.

- Confirm that the organisation and assignment of responsibilities are as described. Check that each post is filled and the department staff is up to complement.
- Visit each technical office and production department to verify that the practices comply with the system prescribed. Question personnel and examine sample documents. Seek corroborative evidence. Use all possible techniques to establish corroboration.
- Base the audit on the written statements in the approved documents. Do not refer to 'good practice' or to your own preferences.
- Determine whether or not the manufacturer's practices throughout his or her offices and shops comply with his approved quality system.
- When reporting the audit, list the elements of the quality system which have been found to be satisfactory. For the elements which have been found to be unsatisfactory, report factually and in detail the reasons why they are.

Techniques used in Assessments and Audits

The assessment and audit techniques are the methods used to find the necessary information. They include

- Reviewing the quality manual
- Reviewing departmental procedures asking direct questions
- Asking indirect questions
- Examining documents which verify statements made
- Examining one documents to verify the information given on another
- Examining documents which specify the procedures to be followed and checking compliance with the procedures
- Comparing the spoken word with the written one.

Wherever possible, seek corroborative evidence of any statement made or written.

- When a person makes a statement, ask a suitable question of another which will confirm the answer given by the first person:

Example 1. To person 'A': What do you do?
Why?

Example 2. To person 'B': What does he do?
Why?

➢ When a person makes a statement, whenever possible, examine documents to verify the statement:

o To a Departmental Manager: What are your responsibilities?

To verify the answer: Examine the quality manual
Examine the Departmental manager's job description

o To a Buyer: How do you order materials?

To verify the answer: Examine the quality manual
Examine the purchasing department procedures
Check a purchase requisition
Check a copy of the order
Check data on the order
Check the list of approved supplier
Check the acknowledgement of the order
Check and follow through any amendments to the order.

o To a Welder: Which weld procedure are you using?

To verify the answer: Examine the welder's job instructions
Examine the weld procedure
Check that the issue is pertinent
Examine the requisition made out by the welder for consumables
Examine the stores record of consumable issued
Make physical checks on the set-up, consumables, equipment and the current
Compare these with the procedure

o To a Tester: How do you carry out the test?

To verify the answer: Examine the tester's job instruction

Examine the test procedure

Check the test procedure against the requirements of the code

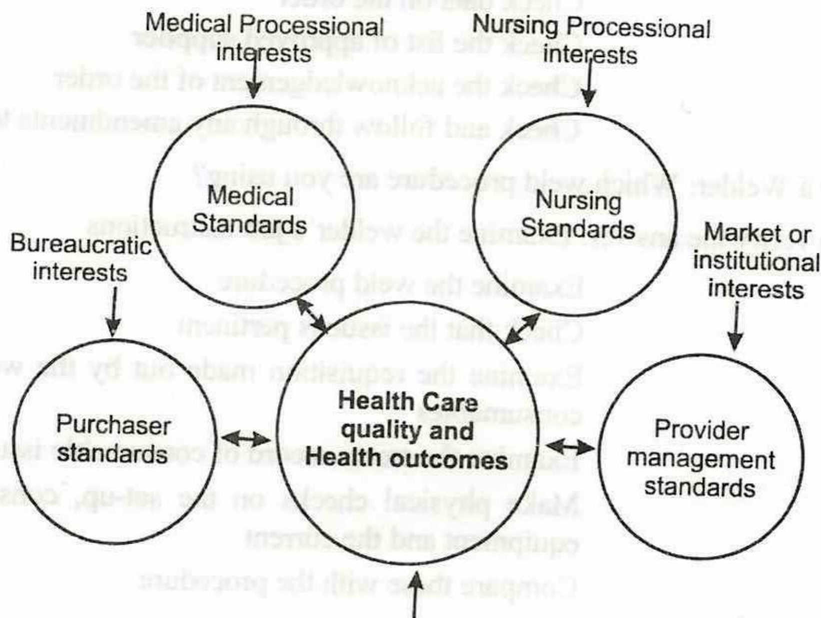
Make physical checks on the set-up, equipment, calibration and readings

Whenever possible, try to establish a chain reaction. Take one contract and check the information through the chain.

AUDITING FOR PATIENTS

Issues related to health care quality care receiving increased public attention in many developed countries. The factors responsible range from concerns about the cost of health services and the extent to which the services actually generate better health to now consumer expectation and changing processional patient relationships. Quality can be understood in terms of service of product attributes and the managerial and organisation techniques needed to achieve and whenever possible improve on agreed standards.

Quality Strategies and Sectional Interests



The above model can be linked to the following definition of quality:

Traditional Quality

Conveying prestige a 'quality' service can be as seen as raising self-esteem and confidence of users (and its providers)

Scientific and Professional Quality

Based on 'expert' set standards and peer group values. Professionals internalize their collective norms and imperatives, expressing them in terms of their (moral) duties to patients.

Bureaucratic 'Management' Quality

Demands compliance with top-down set rules, impartially applied. Measurements of performance are reliant on indicators approved by the internal hierarchy. Standards set by experts, but ultimately under political control.

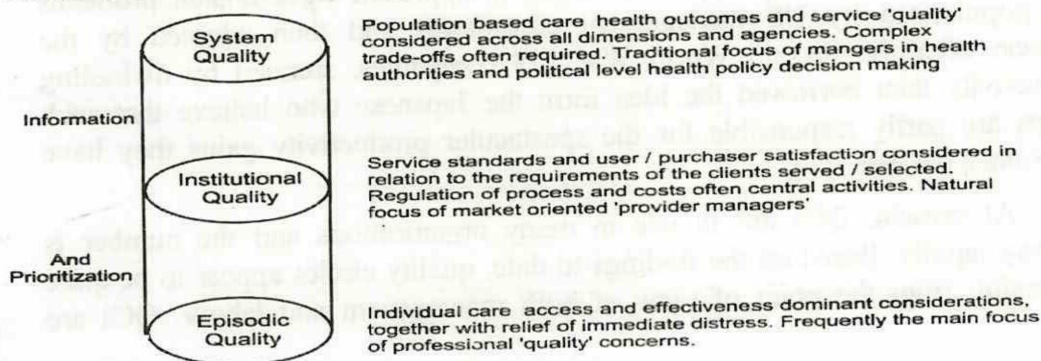
Market 'Management' Quality

Derived from consumer willingness to pay for a service or goods offered in a competitive market place. Cannot without extensive regulatory intervention maximise consumer well being in imperfect market conditions.

'Consumer' Quality

Sometimes confused with market 'Management' quality. As used here, attempts to construct 'perfect market' conditions though enhancing purchasing relationships, with consumer involvement in local and national decision making and improved understanding of patient / public requirements will, if communicated effectively, help to draw disparate quality standards together to form a unified 'full colour' picture.

Levels of Health Care Quality



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Quality Control in Health Care

Health care services not only affect the well-being of society, but also consume a significant part of any country's wealth and employ a large number of people. The performance of services cannot expect to escape regular attention. Governments and people at the helm of affairs must be prepared to argue not only as custodians of the public purse but also as defenders of the public right to good health care.

The public has become a better informed consumer of services and experts assurance that services are good. Patients do not necessarily wish to know or be able to judge all the technical details, but they do have a right to know that those who carry the technical responsibility to apply effective controls. This is essential to the public's trust in the profession.

Quality patient care is provided by a complex blend of multidisciplinary technological and human resources. All activities must operate in a rapidly changing environment that imposes a broad range of pressures on the provider of services, as well as the user. In order to serve the public properly, quality assurance activities must promote active collaboration between the staff and the management. Working together facilitates problem solving and promotes accountability.

Quality control should not be construed as an extra burden incorporated in, or added to, a process. It should be the concern of all personnel, since the production of high-quality services enhances the reputation of the organisation. How a health care institution organises its quality control function will probably reflect its overall structure and attitudes towards involving junior personnel and policy decisions.

The idea of the quality circle (QC) to approach work-related problems was popularised by US management consultants and then adopted by the Japanese after the Second World War. US companies, stunned by dwindling productivity then borrowed the idea form the Japanese who believe that such groups are partly responsible for the spectacular productivity gains they have made since the war.

At present, QCs are in use in many organisations and the number is growing rapidly. Based on the findings to date, quality circles appear to be quite successful, from the point of view of both management and labour. QCs are

intended to improve employee satisfaction, group performance and cost effectiveness.

Employee Satisfaction

The development of programmes that increase worker participation is a great challenge to human resources managers in the last decade of the twentieth century. When employees are given the opportunity to make more decision about their work, they are more productive and satisfied and their needs are fulfilled. Need fulfilment or frustration results directly in either constructive or destructive behaviour. Dissatisfied employees do not provide excellent level of care so desperately needed in hospitals. Such dissatisfaction leads to an ineffective workforce, costly absenteeism and employee confrontation.

Employee participation plans must develop a spirit of cooperation and teamwork as their end product. The ethical nature of shared decision making be cold down the line to the organisation.

Group Performance

The idea of the QCs appears to be an effective one of harnessing the performance stimulating potential in a work group.

QCs are examples of how managers use work groups effectively. They meet once a week for the purpose of spotting and solving problems in their work area. At Litton, the QC idea has been combined with Likert's linking pin approach so that, in a sense overlapping QCs of workers and their supervisors, of supervisors and their manager and of managers meet periodically to discuss problems and recommendations including people building programmes and cost-reduction programmes.

QCs are seen as a way to solve quality or productivity problems and as one of the techniques fro improving production.

In order to compete in the world market, Japanese firms had to improve the quality of their products. One of the interesting techniques is the QC. At first, employees were trained in the analysis of quality problems. But now other problems, employee morale, pollution control and the education of employees.

The circle selects and analyses a problem, develops a solution and presents its finding to management which generally accepts the group's recommendations.

Cost Effectiveness

Based on findings to date, QCs appear to be quite successful from the point of view of management and labour. General Motors have about a hundred QCs operating in various plants of its car divisions and in at least one case a circle was responsible for saving the company $225,000 annually.

The workers themselves may share in any cost savings and get a feeling of accomplishment from tackling a challenging task. They too, therefore, gain form the QCs. To increase employee participation, hospitals need to implement QC programmes.

What are Quality Circles?

Quality control circles are groups of people, usually numbering between six and twelve, from the same organisational area, who meet regularly to solve problems they experiences at work. Members are trained in solving problems in statistical quality control and in working in groups. Usually a facilitator works with a member may receive recognition, they usually do not receive monetary rewards.

QCs evolved from suggestion programmes. In both approaches workers participate in solving work related problems. Although in suggestion programmes the problems are usually quite specific, those handled by quality control circles are often more complex and require the involvement of several team members. The team consists primarily of rank and file workers and sometimes also includes supervisors. So called efficiency experts are usually exclude from the team.

Basic Principles in QCs

- Trust your employees. Expert that they will work to implement organisational goals if given a chance
- Build employee loyalty to the organisations. It will pay off.
- Invest in training and treat employees as resources. This means developing employee skills.
- Recognise employee accomplishments
- Decentralise decision making

- Regard work as a cooperative effort, with worker and managers doing the job together by implementing a consensual decision making process.

Outcome of QCs

- Developing oneself and others.
- Increasing quality awareness.
- Encouraging the brainpower of the workforce. Improving worker morale.
- Developing managerial abilities of circle leaders.
- Implementing and managing accepted ideas.

Steps in Establishing QCs

Planning Phase

This usually takes about a month and typically begins with a top level executive making the decision to implement the QC technique. This usually leads to identifying and selecting a consultant who will assist top management in implementing the programme. A steering committee is selected witch directs QC activities in the organization. The committee is usually multi-disciplinary. The steering committee also establishes circle objectives in terms of the kinds of 'bottom-line' improvements it would like to see. Yardsticks include reduced errors and enhanced quality, more effective team work, increased job involvement, increased motivation and an increased attitude of problem prevention. At the same time, the steering committee determines actions that are considered outside the charter of circles.

It also chooses the in-house facilitator—the person responsible for daily coordination of circle activities, training leaders for each circle, attending circle meetings, providing expert advice and back-up coordination, and maintaining records to reflect circle achievement

Second Phase

Training: The facilitator and pilot project leaders meet (usually with the consultant) and are trained in basic QC philosophy, implementation and operation.

Third Phase

Initiating the circles: This usually beings with the department manager conducting QC familiarization meetings with employees, with the facilitator, circle leaders and (ideally) an executive participating as speaker. Employees are told they will be contacted later for their decisions as to whether contact each employee to determine circle membership and the circles are constituted.

Fourth Phase

The circle in operation: This involves problem identification, problem selection, problem analysis, solution recommendations and solution review by management. QCs operate though normal management chain of command.

QC Process

- Problem identification
- Problem selection
- Problem solution or recommendations to management

QC suggestions either cost nothing or can be financed from normal department budgets. The entire training of the circle members empathizes that the best way to control problems is to avoid them.

Organising a QC Programme

A QC effort is initiated only upon the decision of senior management.

Initial meetings for a QC are held will all union, management and supervisory personnel. Participation in the QC is voluntary.

The managers who decide to try a QC then make presentations to the hourly – paid workers, at which the participation of these workers is voluntary.

Participation the management in the QC is voluntary. In the QC process, it is the individual who is important.

Employees' self esteem is increased and consequently employees are more open and do not fear a display of openness as they discuss, suggest and set quality goals and methods for reaching these goals.

The key to the success of the QC is top management's complete support and confidence in the concept.

QCs work best in functional areas (administration, housekeeping, and so on) of a hospital and in units employing work flows similar to those found in manufacturing facilities (e.g. Radiology, Imaging, Pathology). Other areas where QCs have enjoyed some success are dietetics, Central Sterilise Supplies Department (CSSD), Laundry, Operating theatres, Respiratory therapy, Maintenance departments and so on.

The effectiveness of QCs would directly benefit from increasing number of direct participants by rotating memberships. The ability of QCs to approve and implement their own recommendations (subject to budgetary limitations) and coordinate the efforts of multiple QCs or to address issues that affect more than just their own department, would expand members' decision making authority.

Delegating decision making authority to QCs would free managers to perform other tasks and allow them to address higher level issues, thereby redesigning their jobs.

QCs embody the principle of participatory management to it fullest. They are based on the theory that an organisation's workers are closet to the problem and indeed may be part of the problem and that therefore, there are based equipped to remedy it, thereby increasing their output and improving the calibre of workers or service.

Review of Quality Delivery Process

The following checklist can be used to review whether each of the ten steps has been fully covered. A little time spent at this stage will avoid having to repeat some of the steps in the process.

Step 1: Create Mission Statement

- Does the mission statement define the main purpose for which the work group exists?
- Is it focused on the end objective rather than the means of achieving it? (It should not contain lengthy statements on the 'why' and 'how' of achieving the mission.)
- Has it been agreed with the next higher manager?

Step 2: Determine the Outputs

- Is the output described clearly, so that there is no doubt about what is being produced?
- Is the output tangible – something that can be touched, seen or measured?
- Will the internal customer for the output find the description acceptable?
- Is the work group really the supplier for this output?

Step 3: Identify the Customers

- Is there agreement about the identification of the customers for this output?
- If multiple customers have been identified for this output, have they agreed that they are all customers?
- Has the end user been identified where the 'output' is incorporated by other work groups for another customer down the line?
- Have the customers been named – specific individuals who can explicitly identify requirements?
- Does the customer feel that the work group is the appropriate supplier?
- Has the work group confirmed its role with the customer?

Step 4: Define Customer Requirements

- Did the customers themselves define these requirements?
- Are the requirements, as now stated, clear enough to be translated into output specifications?
- At this point, can the customer requirements be met?
- Was discussion with the customer successful in agreeing customer requirements?

Step 5: Develop the Output Specification

- Is there a clear relationship between customer requirements and output specifications?
- Are the specifications measurable? If not, can they be made measurable?

Step 6: Define Group's Work Process

- If this is a new output, has a work process to produce it been identified?
- Will the steps in the work process deliver the output to the customer at the agreed quality level?
- Have work group responsibilities been identified for each step to ensure the process is carried out satisfactorily?
- Has the in-process measurement been identified that will be used to ensure the work process is 'in control' (i.e. capable of producing outputs at the right quality consistently)?
- Is the work process adding value at the lowest internal cost?
- Are there any unnecessary or rework/correction activities in the work process?
- Is anyone checking/inspecting the work produced and how can this be eliminated?

Step 7: Identify Measurements of Output

- Have measurements to determine the delivered quality level been selected?
- In general, will the selected measurements provide early indications of any possible problems or errors?
- Will the measurements indicate whether the output conforms to the output specification?
- If you were the customer, would you be satisfied that these measurements ensure the quality of the output?

Step 8: Define the Problem

- Is there a shortfall between 'actual' and 'target' (output specification) quality levels when measuring the output?
- Is there an opportunity to achieve better than target at no additional cost?
- Does the target level reflect competitive best practices?
- Has the problem statement been written down?

Step 9: Establish a Project Team

- Who is going to lead the project team?
- Have the team members been identified?
- Can everyone on the team positively contribute to the solving of the problem? (No room for passengers or cynics!)
- When will the first project team meeting be held?

Step 10: Measure Customer Satisfaction

- Have the key measures of customer satisfaction (or dissatisfaction) been identified?
- Have customers (or a sample of them if there are many customers receiving the same output) been asked whether they are satisfied with the output(s)?
- Have the customer's requirements changed (reflecting a need to change the output specification)?
- How frequently has the work group planned to measure customer satisfaction?

Quality Measurements

There are seven generic ways (in addition to the cost of quality) in which the quality of outputs can be measured:

- Defects (work not to specification).
- Rework (work requiring correction).
- Scrap (work thrown away).
- Lost items (work done again).
- Backlogs (work behind schedule).
- Late deliveries (work after agreed time).
- Surplus items (work not required).

The above measurements apply to office 'outputs' (such as paper, electronic data, telephone calls, etc.) as well as to the outputs of production / laboratories / warehouse (such as parts, tools finished products, etc.).

There are five key measurements for each 'output'.

- Target the budget or target level of performance to be achieved.
- Forecast: the forecast level of performance which may be better or worse than the target depending on current business situation. The forecast also shows when the target will be reached.
- Actual: the actual level of performance achieved to date.
- Problem: the difference between the actual and target level of performance where 'actual' is worse than 'target'.
- Opportunity: the opportunity for improving quality better than target at no extra cost.

EVALUATION OF HOSPITAL PERFORMANCE

Evaluation is essential to all health service activities. It is important to try to find out whether a particular institution or a programme is serving its purpose. Equally important is to determine whether a particular procedure is effective, efficient and really achieving the desired objective. Used effectively, performance evaluation can result in wide-ranging benefits for both patients and clinicians, by ensuring the best use of limited resources and continuously improving the quality of care. Performance evaluation has emerged as a fundamental principle in western medical system over recent years. Only when adequate system of evaluation is introduced into all health care institutions will it be possible to develop more rational health services structure. A valid system of evaluation is, therefore, realized to be essential before formulating planning decisions, particularly when health services need more and resources in any given situation.

There is a need to put performed elements of care through measurable cri9teria. Quality of care though difficult to measure in absolute terms, generally can be referred to as care or services according to accepted professional standards. The application of performance indicators is the first step to initiate performance appraisal of the hospital in general.

Since quality management activities are ultimately designed to improve organizational performance, a successful quality management initiative should

increase performance. Efficiency and efficacy of the provision of health care can be assessed in three areas--financial, operations, and human resources. Quality assessment necessitates using a wide range of criteria and undertaking analysis at individual, departmental, and organizational. The assessment should emanate from the functional units of the health care organization so as to optimize the feedback of evaluation findings for continuous improvement.

Process measure of financial efficiency include cash flow management measures that describe how well the organization manages its financial assets; debt structure measures; and asset utilization measures that indicate how well the organization translates its assts into patient revenue.

Operational efficiency consists of two components: clinical and administrative. Process measures of clinical efficiency include service use (short term) and service use per case (long term). Outcomes include cost per unit of intermediate (short term) and final output (long term). Examples include cost per X-ray, surgical procedure, admission, and patient day.

Process measures of administrative efficiency include length of stay and waiting time. Process measures of human resource efficiency include aggregate payroll. Outcomes include traditional productivity in the sort term and employee mix in the long term. Indictors include admission, patient day, and net patient revenue per full-time equivalent in the short term and the ratio of the salary to the total expense in the long term.

Process indicators of financial effectiveness include budgetary conformance and productivity management. Outcome indicators, consist of growth in assets and equity and profitability. Operational measures of effectiveness include patient process indicators, the timeliness of task completion, and hospital-based morbidity and mortality. Outcome indicators include morbidity, mortality and patient satisfaction. Clinician process indicators include medical staff composition and staff quality. Outcome measures include medical staff performance and medical staff attitudes.

Effectiveness of human resource activities includes process measures of employee attitude (job satisfaction, organization commitment and loyalty). Outcomes include absenteeism and turnover. The most critical measure of effectiveness is patient outcome (curve, survival, functional ability.

Use of cost-effectiveness analysis is becoming more popular in evaluating elements of the health care system. Properly applied, the process includes explicit statement of perspective of assessment, full description of the 'production process' involved, listing and measurement of programme benefits and costs, discounting of benefits and cost that occur in different years, sensitivity analysis of key parameters of the model, and summary presentations of cost-effective findings.

If CQI is to become a mindset, adjustments need to be made in all aspects of management, especially human resource management.

Example of End Points for Measuring Quality of Care

- Access
  - Access to an emergency service
  - Access to a sub speciality clinic
  - Admission to hospital for acute abdomen problems. AIDS. Etc. regardless of income
- Process
  - Complete history and physical examination
  - Complete blood count on al in-patients
  - Discharge summary within 24 hours
  - Daily note by all physicians.
- Outcome
  - Infection
  - Bleeding
  - Drug error
  - Fall
  - Pulmonary embolus
  - Myocardial infarction
  - Hypo-/Hypernatremia
  - Patient satisfaction and symptom relief
  - Functional status.
- Consequence of outcome
  - Excess stay in hospital

- Stroke
- Allergic reaction
- Fractured reaction
- Fractured hip
- Mechanical ventilation
- Cardiac arrest
- Coma
- Out-of-pocket expenses.

Some Attributes of Quality in Health Care

- Effectiveness: The ability to attain the greatest improvements in health now achievable by the best care
- Efficiency: The ability to lower the cost of care without diminishing attainable improvements in health.
- Optimality: The balancing of costs against the effects of care on health (or on the benefits of health care, meaning the monetary value of improvement in health) so as to attain the most advantageous balance.
- Acceptability: Conformity to the wishes, desires, and expectations of patients and responsible members of their families.
- Legitimacy: Conformity to social preferences as expressed in ethical principles, values, norms, mores, laws, and regulations.
- Equity: Conformity to a principle that determines what is just or fair in the distribution of health care and of its benefits among the members of a populations

Effectiveness

Effectiveness is the degree to which the care proposed or received has achieved, or can be expected to achieve, the greatest improvement in health now possible, given the patient's condition and the current state of the science and technology of health care.

Efficiency

Efficiency is expressed as a ratio of actual or expected improvement in health to the cost of care responsible for these improvements. Therefore,

efficiency could be enhanced by only improving the effects of care, by only lowering costs, or, best of all, by accomplishing both at once. Still another possibility, that improvements in health would be reduced, but costs reduced even more, will be excluded for now, seeing that established values and traditions in health care require a constant striving for the best results.

Optimality

Optimality is represented as a ratio of the effects of care on health, or of the financial benefits of these effects, to the cost of care. This means that improvements in health are values, not in absolute terms, but relative o the cost of care.

Acceptability

The fourth constituent of quality in health care is the acceptability of that care to patients or their surrogates, usually members of their families. The degree of acceptability, in its turn, hinges on at least the following five properties:

- Accessibility
- The patient-practitioner relation
- Amenities
- Patient preferences as to the effects of care
- Patient preferences as to the cost of care.

Accessibility

The ability to obtain care easily and conveniently is likely to be an important mark of quality. Accessibility also contributes to equity in the distribution of care, a key requirement for its social acceptability.

Determinants of Quality

The concepts of structure, process, and outcome as determinants of quality of care were articulated by Avedis Donabeidan in a series of influential papers and books first appearing in 1996. Structure refers to the 'relatively stable characteristics of the providers of care, of the tools and resources they have at their disposal and of the physical and organizational settings in which they work'. Process is 'the set of activities that go on within and between practitioners and patient'; it concerns itself with what is done to and for the patients. Outcomes are the end results of health care and were understood by

Donabeidan to include changes in patients' current and future physical, social and psychological health attributable to prior health care as well as patient satisfaction and changes in knowledge and behaviour. The availability of processes and the likely-hood of their success without complications are influenced by institutional and organizational structure and by the availability of human and material resources. In turn, outcomes are influenced (often, determined) by the appropriateness and success of the processes by which medical care is delivered. Schematically, this relationship is: structure-process-outcome.

Purpose of Evaluation

The objectives of evaluation of hospital performance are:

- ➢ To plan future course of action. For this purpose it is necessary to obtain baseline information through evaluation of the achievement so that future course of action is planned on a known baseline, with a view to improves the quantum and quality of care.
- ➢ Regulatory in nature, ensuring the fi·ll and effective utilization of staff and facilities available. if the staff know that concurrent as well as periodical evaluations are being carried out they would continue giving their best.
- ➢ To asses effectiveness of health programme put into practice.

Performance Evaluation of Hospital

The outcome of a hospital operation, that is, service (medical care) can be evaluated in terms of:

- The amount of work done: is it optimal, minimal or maximal?
- The quality of work performed: how good is the service?
- Cost of care to the patient and the cost of hospital operations; and
- The extent to which the patient is satisfied or the impact of medical care system on the population served by the system.

Organization of Evaluation

It is essential that the clinical and administrative staffs of an institution are able to identify and understand the problem areas in it which are complex in

nature. To facilities recognition of such trouble spots easily, it is necessary to carry out evaluation by executing agency (internal evaluation) and by outside agencies (external evaluation). Assessment of the achievements of a programme by the executing agency has been termed as 'evaluation' by the Administrative Reforms Commission (ARC, 1968). Internal evaluation is normally carried out by a committee of medical staff, such as Medical Records Committee.

Prerequisites

- The framework of the hospital information system should be so organized that there is a rapid and regular feedback of information. The information based on the 'hospital' which is called 'Hospital Operational Statistics' can be grouped under three major heads:
    - Resources of the hospital, for example, bed, diagnostic and therapeutic facilities, staff available.
    - Utilization of the hospital, including statistics of patient movement, statistics of days of care, and statistics of other professional services such as, operations, deliveries, foetal deaths and out-patient visits, the types of diseases treated, the number of type of laboratory and radiological examination and so on.
- Administrative and financial data. The information based on the 'patient' may be termed as 'Hospital Morbidity Statistics'. The statistical unit is patient, and information is collected form medical records. This report includes the personal characteristics of the patient (age, sex, marital status, occupation) and other data as length of stay, presence of complications, type of treatment, and outcome of hospital stay.
- The procedure of collection and tabulation of hospital statistical data should be standardized in all hospital
- The primary source of medical statistical data in the hospital is the medical records. Therefore, accurate and complete record-keeping and good patient registration system is essential.
- A trained medical record librarian with good background of medical science is essential to carry out quantitative medical case record analysis.
- A hospital planning and research cell should be established at the state level to tabulate, analyse and interpret the statistical data and recommend

methods of improvement. This cell should also be responsible for follow-up results achieved after implementation of management procedures.

Methods of Evaluation

The measurement of efficiency of service poses many problems as it is not possible to establish accurate standards of judgment. Yet we need to have some means of evaluating the service, for, only then can efficiency of performance and in turn the community benefit, be assessed. There are two methods of evaluation, namely, (a) indirect method, which considers the structure or the factors that influence the efficiency of medical care, such as staff, physical facilities, equipment; and (b) direct method, which is concerned with quantitative and qualitative analysis of medical records for collection of various data for the evaluation of the process of care.

Parameters of Evaluation

Effective use of Bed (as a measure)

In order to help reduce increasing cost and overcrowding, and to provide medical care to the needy, 'Utilization Committees' have been formed in many hospitals in the USA. The mechanism of such review includes tow kinds of studies--the regular study of representative samples of records of patients, both those discharged and those currently receiving care. The purpose of review is to consider adequacy and appropriateness of use of the facility and its resources, from both quantitative and qualitative points of view. The specific benefits of utilization committee activities are said to be as under:

- Reduction of excessive patient stays.
- Reduction in unnecessary admissions and in over-utilization of ancillary services, such as laboratory and imaging.
- Closer communication between the medical staff and administration.
- Improved procedure for admissions, discharges and inter-service transfer.

Such a programme generally includes study of average length of stay, bed turnover rates, turnover interval (vacancy interval), occupancy rate and so on, to evaluate the extent of utilization of bed.

Evaluation of Quantum of Work Done

This can be measured easily, from the routine hospital statistics compiled in various departments, such as laboratory, radio diagnosis, Operation Theatre, outpatient, blood bank, physiotherapy and similar other department. For this purpose, a good medical record and patient registration system must be in existence in all hospital. If there is some basic uniformity in the data so complied and if the procedure for compilation is satisfactory, the output of the same sized hospitals in a region or state can be compared.

Evaluation of Quality of Care

The evaluation of quality of medical care is not an easy task. It should not be very difficult to work out norms, provided a system of reporting of such data is introduced and complied at the district and state level regularly.

In the absence of above norms, an 'indirect' method of evaluation of quality of care may be adopted which consists of structure of care or various factors that influence the quality of care, such as staff, physical facilities and equipment.

Staff

- Medical
  - Compare the number authorized against estimated number required; whether the number posted is adequate for the existing load of work?
  - Are the specialists available to offer specialist care to out-patients and in-patients?
  - Whether the system of referral for consultation with specialists is working satisfactorily?
  - Whether the doctor's time is fully utilized for professional care? What is the level of training and specialization of medical staff?
  - How do they function in a team?
  - Is clinical meeting held regularly?

- Nursing
  - Has adequacy of staff: how do they compare with the estimated requirement?
  - Is the nursing time fully utilized for nursing care?
  - What is the level of training and skill of nursing staff?
  - How are they organized and distributed within the department?
- Paramedical
  - Are various categories of personnel properly distributed to different departments?
  - What is the level of their job satisfaction?
  - What type of in-service training is imparted?

Physical Facilities

Equipment

1. Is essential equipment available as per authorization?
2. Are these effectively used? If not used, is it because:
   a. The clinicians do not have time;
   b. No trained staff is available to use the equipment;
   c. Equipment is not in working order; or
   d. Equipment is not required at all?

Out-patient Department

Working Hours

- Do they suite the community? Are these adequate to avoid overcrowding?
- Is sufficient time and attention given to the convenience of families?

Screening

- Is there a method of quickly sorting out minor cases from complicated cases requiring detailed examination?

- Is guidance available for patients after screening to reach different specialists for consultation?

Clinics

- Are there special clinics for maternal and child health, elderly (geriatrics), etc.?

Health Education

- Are the people given health talks while they wait for their turn for medical attention? Are posters and charts available in waiting areas?
- Investigation Facilities
- Are the routine examinations carried out during waiting period so that the results of these tests are available when the patient is seen by the specialists?

Professional Work Evaluation (Direct Method)

In the absence of a suitable system, the following methods may be adopted for evaluation of professional care:

X-Ray Review

Weekly review of each film by clinical unit staff to ascertain:

- Whether it was necessary or whether it could have been avoided if a complete examination was carried out.
- Should a subsequent film be taken or should have been taken before discharge?

Tissue Review

All biopsies done during the week are reviewed again by the medical staff either to plan or modify the therapy and also to justify whether surgery in a particular case was necessary.

Death Review

All fatal cases during the week are reviewed by medical staff to ascertain whether the diagnostic procedure followed was correct and whether the therapy was justified in the case.

Medical Case-Sheet Review

Random samples of medical records of patients discharged during the previous week are reviewed carefully. The retrospective review provides the following valuable information about the patient while in hospital:

- Was the patient unnecessarily retained?
- Could the diagnosis have been established earlier?
- Could less costly drugs have been used?
- Could laboratory and X-ray investigations be avoided?
- What arrangement was made for follow-up after discharge?

The primary purpose of medical audit is to elevate the quality and efficiency of medical care, and for so doing, to seek the cause for poor results, not critical judgement of a personal nature. The poor results may also be due to the following related conditions:

- Incompetent administration.
- Inadequately equipped physical plant.
- Poor supervision of patient care.
- Deficient personnel policies affecting morale.

Cost of Care Evaluation

Here again one is confronted with a task which is not easy to carry out. Introduction of a simple system of cost accounting in hospitals is considered necessary to relate the services provided (output) to the cost of resources (input), and to create cost consciousness in the staff working in the hospital. Cost analysis studies should include (a) 'fixed costs', which include direct labour, supervision, administration, depreciation of buildings, furniture and machinery and overhead cost, and (b) 'variable costs' which include items as 'direct' materials, maintenance, electricity, and water. To being with, the cost of consumption of material in functional areas of a hospital may be collected, analysed, and compared between hospitals. Annual results may be complied by districts and submitted to the state headquarters for comparison between districts. The important areas which should be covered by cost analysis study are out-patient, in-patient, operation theatre, laboratory, and radiology departments.

Consumer Satisfaction Evaluation

Consumer satisfaction is closely linked with the public relations of the hospital. The quality of service provide to the patients by hospital employees is the foundation of good hospital community relations. If the service is good, the institution enjoys good community relations; if poor, the hospital has bad image in it service area. The quality of service may be measured by what a patient thinks about the service he/she receives. Therefore, patient opinion pool should be used as a reliable measure of quality of service.

Collection and Presentation of Data

A vast amount of information is available to enable an objective assessment of the hospital service and to compare the performance of one hospital with that of another. The main problem is the collection, compilation and presentation of the basic statistical facts in a more acceptable and digestible form.

In the hospital, reports are needed by the management. Therefore, the logical procedure is to tabulate daily from the case-sheets of the patients discharged the previous day, and from the reports received from various diagnostic and therapeutic departments. As regards the administrative data, the following requirements are suggested:

Daily

For day-to-day management of the hospital: number of admission, discharges, births, deaths, seriously and dangerously ill cases, and available beds by department, together with such special items as the number of medico-legal cases, dignitaries and staff admitted as patient and emergency admission.

Quarterly

For assessment of load on service departments and use of facilities: number of X-ray plates used, laboratory tests made, operation performed, blood transfusions given and similar items.

Annually

For longer-term administrative purposes including evaluation: number of autopsies, biopsies, total days of hospitalization ad average length of stay, bed turnover rates, bed occupancy rates, and number of discharges by condition at

discharge, costing data, like cost per in-patient-per day, cost per out-patient, cost per X-ray for in-patient, cost per laboratory test, cost per operation so on.

It is essential to introduce a standard 'Hospital Information Sheet' for presentation of hospital statistical data for communication to staff members and the management.

An apex body should be established for constant collection and analysis of hospital statistics, so that factual baseline information is always available to the top management. For this purpose, health planning and evaluation cell, which is a part of establishment of central and many state health services, should made responsible.

The functions of the planning and evaluation cell should be as under

- Collection and analysis of necessary statistical data on preventive health and hospital.
- Plan formulation, including priority determination.
- Evaluation and filed study.
- Standardizing norms and procedures for research and studies in health administration including hospital administration.
- Follow-up studies connected with implementation of programme.

The field study arm of the planning and evaluation unit to be located at state headquarters should use hospitals and community as laboratory for testing, experimentation, collection of data formulation and testing of hypothesis relating to administration, staffing, medical care and training in the area of planning and evaluation.

Standardisation of Quality Medical Care in Hospitals

Advances in medical sciences and diffusion of high technology have resulted in rapid progress of health care procedures and equipment. A comprehensive scientific evaluation is essential before adoption to these by the hospitals to help them avoid social and economic mistakes. Such quality assessment measures must cover the efficiency, cost and outcome of health care technology.

Rehabilitation Service

This department provides diagnostic and therapeutic service on an ambulatory basis.

Long queues are universal phenomenon in various areas of the hospitals whether it be at the reception or out-patient or registration counters, consulting rooms, dispensary, radiology or any other point of service. The average waiting time is more than 30-40 minutes. A number of studies have been conducted in the different OPD areas in order to reduce the waiting time. The standards of number of registration a clerk can do in an hour, number of injections that can be given by a nurse in an hour in OPD, have been developed in order to adequately staff theses areas so as to reduce the waiting time of patient and improve patient satisfaction.

Emergency Department

This is an independent unit which functions round the clock. This department is a point of major public impact which provides service and at the same time it is most vulnerable to criticism and censure.

Here the quality of medical care provided depends upon the efficient functioning of its personnel and the equipment. The emergency care is provided on the basis of standard operative procedures followed in the clinical medicine.

Diagnostic and Therapeutic Facilities

These services provide the necessary support to diagnose the clinical state of patient and also monitor the progress of the disease and the effect of medication or treatment – clinical pathology laboratory as diagnostic faculties and radiotherapy, operation theatres, rehabilitation and physiotherapy as therapeutic areas.

Clinical Pathology

Large numbers of tests, both quantitative and qualitative, are carried out by these clinical laboratories. In the clinical laboratories, statistical control charts are being used to detect assignable causes of variations in the tests which are either due to equipment or due to reagents or due to operators. Thus the diagnostic errors resulting from the malfunctioning of laboratory services can be controlled. The standardisation of equipment, reagents, the methods used and the

qualifications of the operators is done so that the quality of results is up to the mark.

Radio-Diagnosis

The standards have been developed as to how many x-rays one technician can do in an hour. There may be up to 10-20 percent of wastage of x-ray films either due to faulty processing or mistake in instrumentation or other causes. Simple statistical methods can be used to discover ways of controlling this wastage against the laid down standards. This department also requires the standardisation of its equipment, machines and their spares. Standards have also been developed in other diagnostic and therapeutic facilities like operational theatres physiotherapy and rehabilitation department.

Nursing Care Units (Wards)

These units consist of wards and intensive care units which are important areas. The quality of medical care provided to the patient depends upon the quality of nursing care, availability of well maintained and functional equipment and their operators. Experts have laid down certain norms such as number of nurse required per hospital bed in general and in intensive care units. These have been based on activity analysis of nurse. Earlier the nurse used to boil the syringes and equipment in each ward and thus a lot of time was wasted in non-nursing activities. By creating central sterile supply department (CSSD) these activities have been eliminated and more time of the nurses is devoted towards better nursing care, thus improving the quality of medical care.

Support Services

The hospital supportive services cater for the conforming environment when the patient avail such facilities during their hospitalisation period. Support services like CSSD, dietary and medical stores, laundry and housekeeping and an efficient workshop are required for efficient working of equipment in the different departments and wards of the hospital.

CSSD, laundry and dietary departments are the areas where most of the operations that go on can be said to be repetitive, that is, processing the same type of raw materials like linen, syringes, equipment or food. There is a need for standardisation of operative procedures and equipment. Standards have been

developed in these areas by the research work, the implementation of which leads to improved efficiency in the hospital.

Similarly, quality controls have been laid down in drugs purchasing committees. The management of these stores id done on more scientific inventory control techniques so that the quality of patient care is improved.

Administration Department

Hospital administration as its own standards to measure the quality of medical care provided to the patients. This is done through the patient care information system or statistics. The medical re4cords section organized under the administrative department is responsible for maintaining the patient's medical records for their subsequent retrieval and the same department prepares the periodical information regarding the utilization of hospital resources, beds and the outcome of the treatment provided by the different departments. These data are compared with the standards laid down in health field so that quality of care rendered can be compared. Some of the commonly used statistics are discussed below.

Average Length of Stay

This is the average duration fro which a patient stays in the hospital. This can be general or selective for a particular disease or department and any deviation is checked for the factors responsible.

Bed Occupancy, Bed Turnover Intervals

These are the indicators used to find out the utilisation of hospital beds.

Gross Results

In end results of medical care, the patients are either recovered, improved, not treated and died. Etc.

Death Rate

Usually the maximum does not no exceed 4 per cent of hospital discharges. Ordinarily they would not exceed 3 percent of gross (total deaths) and 2.5 percent of net death rate.

Anaesthesia Death Rate

One in 5000 is usually considered the maximum

Postoperative Death Rate

Death within 10 days and connected with operation should be less than 1 percent

Maternal Death Rate

This is the ratio of maternal deaths to obstetric patients discharged and should not exceed 0.25 per cent

Infant Death Rate

It should not exceed 2 per cent of births

Autopsy Ration

A minimum of 25 percent is required by American Medical Association

Consultations Rate

10 to 15 percent off all the patients

Complications

Need not exceed 3-4 percent

Infection Rate (Post Operative)

Occurrence among surgeries and obstetric cases should not exceed 3-4 percent.

Quality of care measurements involves quality of technical care (adequacy of diagnostic and therapeutic procedure) and quality of are of care. The different variable to assess the quality of care (relating to the perception of the patients as consumers and behaviour of the provider in delivering the care) include structure, process and outcome criteria. There is a need to formulate effective methodology to evaluate the system of delivery of medical care

UNIT 5

TOOLS AND TECHNIQUES OF QUALITY

Once management have been convinced of the need for change and all employees made aware of the reasoning for the change initiative it is essential for everyone to have the relevant knowledge or ability to use basic problem-solving tools.

Flow Charting

A flow chart is a diagram that shows all the major steps of a process. Preparing a flow chart is one of the first things to do in analyzing a process. It uses a set of standard symbols to document the process steps, presenting them in a pictorial format that is easy to understand.

Through flow charting, team members can better understand the how the different steps in a process are related to each other. It provides insight for identifying value-added activities, control points, data-collection points, inefficiencies in the work flow and obvious key points in the process. It is also an excellent training tool for new employees. A flow chart is used:

- To analyse relationships between sequential activities
- As a technique for fully understanding a problem
- As a source of information for problem identification and resolution
- To analyse customer or supplier activities.

How to flow chart a process

- Bring together representatives from all departments responsible for the process so they can perform the analysis together
- Title the chart with the name of the process analysed. If there is more than one, diagram them on separate charts and number them sequentially
- List sequentially all major steps involved in the process. In some cases it may be easier to start at the end of the process and work towards the beginning. However, the flow is always shown beginning at the top-left corner of the chart. Make sure that process boundaries are clearly defined
- Using the set of symbols shown in draw a flow diagram. Concentrate on major processes so that the flow chart will fit on a single page if possible.

The chart should represent the way things are, not the way they are supposed to be

- When processes are complex, create second-and third-tier flow charts as necessary to adequately break down all major processes into the component parts

Brainstorming

Brainstorming is, without doubt, the most fundamental of all problem-solving or analytic tools. It is a way of generating a large number of ideas from a group of people in a short period of time. An individual would undoubtedly find it difficult to create a large quantity of ideas on a particular topic but thinking collectively, a group can produce thoughts and, in many cases, finding solutions to problems.

Despite what it may seem, brainstorming requires a somewhat structured approach:

- The process should take place in small groups – usually between four and eight persons. Having the group too large or too small can, in fact, inhibit participation
- The membership of the group is a very important area and should be dictated by the topic to be 'brainstormed', i.e. all members from the same work area for localized problems or perhaps a cross-functional team for more strategic issues
- Each group requires a leader t keep the process focused on the topic area, to promote thought and to record the outputs
- Finally, the process should take place in a no-blame, n-interruptions environment.

There are some basic brainstorming rules which, if applied, will assist the leader and team members to achieve the maximum number of ideas in the limited timeframe available.

Rules of Brainstorming

- Define and write out the topic
- Take turns of offering ideas in sequence

- Maximize the quantity of ideas generated
- Wild ideas are welcome
- Do not criticize people's ideas
- Do not discuss ideas
- Build on ideas
- It is 'OK' to pass
- Record information as given.

Having generated as many ideas as possible within the timeframe, the next step is to discuss the relative merits of each idea. Some ideas on the list will merely be gripes, others may have great value. It is important to be able to prioritize these ideas in some way, as it would not be feasible to address each idea and continue with the day-today running of the business. Many prioritizing techniques exist, including prioritizing by criteria and prioritizing by paired comparisons, but perhaps the most well known is Pareto Analysis. This is based on the Pareto effect, more often referred to as the 80-20 rule.

Pareto Analysis

Pareto Analysis is a tool used to prioritize problems for solution which highlights the 'vital few' from the 'trivial many'. The vital few are the factors accounting for the largest percentage (80%) of the total, while the trivial many are the myriad factors that account for the small percentage (20%) remainder. The 80-20 rule suggests that approximately 80% of the value or cost comes from 20% of the elements, e.g.

80% of the sales comes from 20% of the customers, or

80% of the cost of inventory is tied up on 20% of the parts.

Pareto diagrams are used mostly in conjunction with collected numerical data or with ideas produced by brainstorming. They are essentially bar charts with a unique feature which is that the bars are placed in order of importance – usually cost or frequency.

The following example will highlight use and application of Pareto Analysis. Consider the data sheet of common error in any administration department. The first tow steps towards constructing a Pareto chart are:

- Determining the items to be investigated. This can be done by brainstorming
- Designing an appropriate data collection sheet.

Having collected the data, a frequency table needs to be produced. This highlights the category of error, the frequency of its occurrence or cost, the cumulative frequency, the relative frequency, and the cumulative relative frequency. In this case, the 'other' category occurs 1.9% of the time. If the others account for 50% or more of the data, then the breakdown of categories must be reformulated. Table shows that three of the categories account for approximately 80% of the total errors. To show this more clearly, we construct a Pareto diagram.

Record of defects for keypunch operator

Major causes of defective cards	Month				
	1/88	2/88	3/88	4/88	Total
Transposed numbers	7	10	6	5	28
Off-punched cards	1		2		3
Wrong character	6	8	5	9	28
Data printed too lightly on card		1	1		2
Warped card	1	1		2	4
Torn card			1	1	2
Illegible source document			1		1
Total	**15**	**20**	**16**	**17**	**68**

Frequency table of defects for keypunch operator

Major causes of defective card	Frequency	Relative percentage	Cumulative frequency	Cumulative percentage
Transposed numbers	28	41.2	28	41.2
Wrong character	28	41.2	56	82.4
Warped card	4	5.9	60	88.3

Off-punched card	3	4.4	63	92.7
Data printed too lightly on card	2	2.9	65	95.6
Torn card	2	2.9	67	98.5
Illegible source document	1	1.5	68	100.0
Total	**68**	**100.0**		

Construction of a Pareto diagram

- Draw horizontal and vertical axes on paper and add the appropriate unit, i.e. for the vertical scale, the frequency or cost
- Under the horizontal axis add the most frequently occurring or most costly category on the extreme left and continue in decreasing order to the right
- Draw in bars representing the value of each category. Sometimes this bar chart alone may be enough to base decisions on. However, there will be cases when the cumulative percentage of adjacent bars will needed
- Plot the cumulative line (cum line) on the Pareto chart. This is done by starting at zero on the diagram and moving diagonally to the top-right corner of the first bar. This process is repeated adding the number of observations in the second bar and so on until the line reaches the total number of observations.

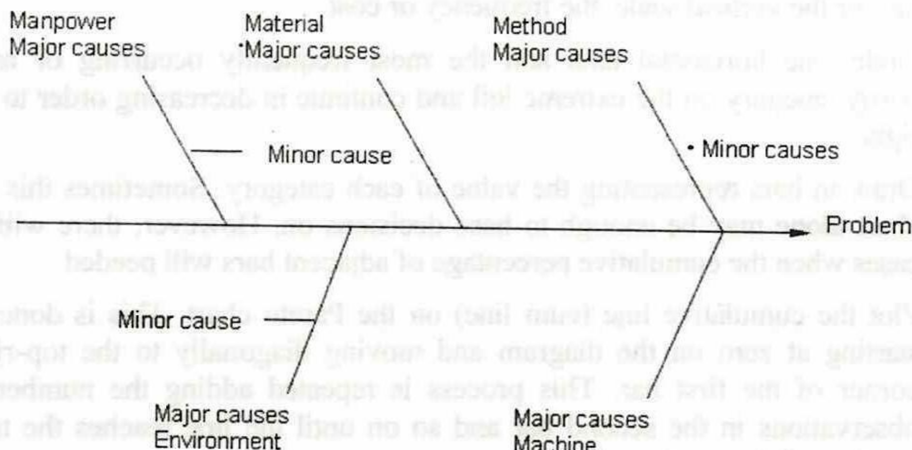
Pareto diagrams must describe when and under what conditions the data were gathered if they are to be useful for comparisons and ascertaining whether change has taken place.

Figure shows a plot or frequency; sometimes it is more forceful if cost is placed on the vertical scale. In this case, the cost per error or occurrence must be calculated. This might require the order of the errors on the horizontal scale to be altered if, for example, the total cost associated with incomplete documents were gather than that of typing errors.

Having identified the major problem areas using Pareto Analysis, corrective action must be taken to address these areas. Then, collecting more data on the same department should show a change in Pareto charts. Again the vital few may be identified and corrected. In this way, continuous improvement takes place.

Cause-and-Effect Analysis

The cause-and effect diagram is attributed to Dr Kaoru Ishikawa. From his understanding of the problems faced every day by plant engineers, he realized that the most complex task they faced was in coping with the multitude of factors affecting their processes and solving their problems. Causes-and-effect diagrams, however, are not limited to use by plant engineers. They have wide-spread application by all members of staff whether in manufacturing or service industry.



Cause-and-effect analysis tends to be used, after brainstorming, to organize the generated information. It is useful in helping us to understand the root causes behind our problems. The technique consists of defining a problem (or effect) which occurs in the workplace and needs to be changed or corrected. Once this effect is defined, the factors contributing to it are required (causes). While there are possibly only one or two causes of a problem, there are probably many potential causes. These should appear on the cause-and-effect diagram for later discussion.

When we think of any process and the factors which affect it, we should think of the following

- Man
- Machine
- Method
- Material
- Environment.

These are the inputs to a process and, as such, obviously affect its output. Thus, errors at the inputs could be the causes of the problems, i.e. the effects.

The Generic Fishbone Diagram

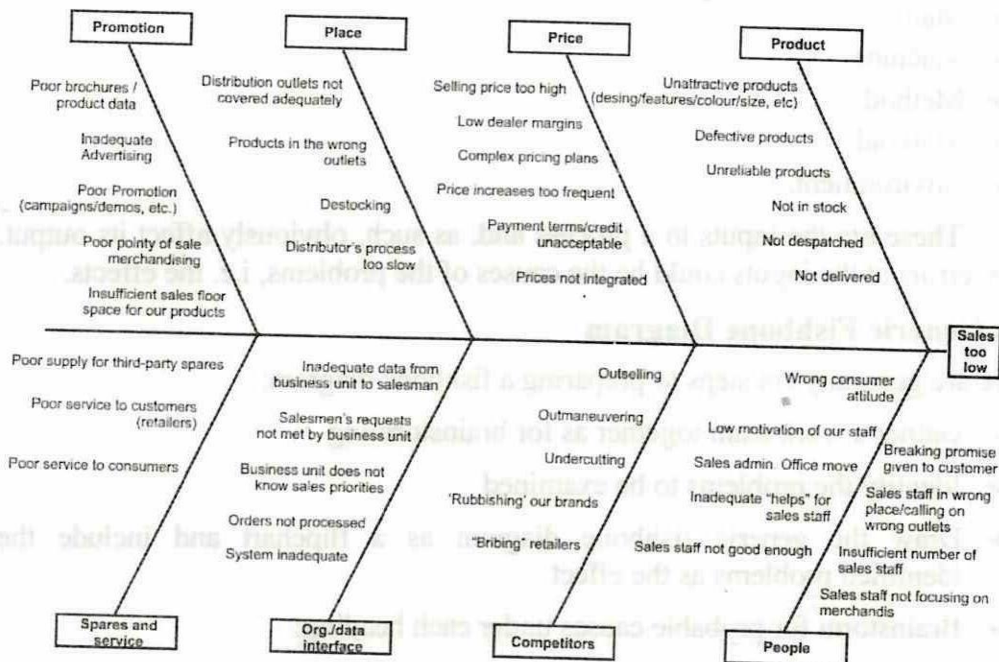
There are generally six steps to preparing a fishbone diagram:

- Gather a work team together as for brainstorming
- Identify the problems to be examined
- Draw the generic fishbone diagram as a flipchart and include the identified problems as the effect
- Brainstorm for probable causes under each heading:
  - Man
  - Machine
  - Method
  - Material
  - Environment
- Ascertain the most likely cause, either by using past data or by group consensus
- Verify the cause by data collection.

Points worth noting

- The five main generic headings may not be sufficient or relevant so change them accordingly
- Too many major headings imply lack of knowledge about the process
- Listing the causes is only the first step to solving the problem

- Fishbone diagrams are useful if you are looking at an individual part of an overall process.



Process Analysis

Process Analysis is another form of cause-and-effect diagram. It is used when a series of events, perhaps multiple steps in a process, gives rise to a problem and it is not clear which step gives rise to the problem.

- In this case, as before, the problem must be defined. The problem could be a defect in the output of an assembly line, for example
- Each state of the process must be examined for possible causes of the problem. This can be done by brainstorming at each stage
- When each significant cause has been selected, it must be verified by data collection or experiment
- Process analysis is ideal for structured processes which can be laid down in a step-like fashion.

Scatter Diagram

The fishbone diagram provided a simple means of relating causes and effects. The scatter diagram is a graphical method of determining the relationship between the cause and effect through pattern analysis.

Scatter diagrams are used to assess whether there is an association or correlation between two process parameters (for example, the hardness of a painted surface in an oven and the temperature of that oven). If one can control the temperature accurately, one can also control the hardness of the painted surface.

Plotting the hardness of the surface against the oven temperature will probably not result in a straight line but rather a series of points scattered about some central line or curve. It is the pattern in which these points lie which determines the relationship, if any.

Steps to constructing a scatter diagram

- Identify dependent and independent parameters and take measurements – 50-100 would be useful
- Draw the axes and plot the points. The independent factor should be on the horizontal axis
- Draw a best-fit line through the points
- Analyse the resulting scatter diagram.

Histograms

Histograms may be thought of as bar charts which show patterns of variation. They are, like Pareto charts, a graphic representation of frequency tables. Histograms are created by dividing raw collected data into equal intervals. The number of measurements falling into each interval is counted and bars are then constructed so that their heights are proportional to their frequency of occurrence.

The histogram thus produced graphically illustrates three characteristics of these raw data:

- The first is the central tendency or nominal. This value is usually called the average. It is the value around which the data are predominantly clustered

- The second characteristic is the range. It is a measure of the total spread of the distribution of data and is usually measured in terms of standard deviation
- The third characteristic is the shape of the data. Usually data fall into a bell-shaped curve called the 'normal distribution'.

Steps to constructing a histogram

- Identify and define data to be collected
- Construct a data-collection sheet
- Collect data
- Locate smallest and largest measurements
- Calculate range
- Select a number of intervals
- Determine class interval size
- Determine class limit end points
- Tally measurements by class intervals
- Draw bars and labels.

Company Self-Assessment Process

In order to quantify fully the precise status of the organization in respect of continuous improvement activities. The European Quality Award Model for Self-Appraisal, the primary objective of which is the regular and systematic review of an organization's activities and results can be adopted.

European Framework for Total Quality Management

During the 1980s many organizations in the West began to realize that their survival depended on the degree to which they achieved quality in products and services and indeed within all areas of the extended enterprise. Today, quality has become the competitive edge in many areas of industry and commerce. Realizing that quality management will become increasingly important, fourteen leading Western European businesses formed the European

Foundation for Quality Management (EFQM) in 1988. The key roles of this organization are to:

- Accelerate the acceptance of quality as a strategy for global competitive advantage
- Stimulate and assist the deployment of quality-improvement activities.

The European Quality Award was established by the EFQM in 1991, in conjunction with the European Organization for Quality and the European Commission. The European Quality Model itself provides a meaningful mechanism for self-appraisal. This appraisal involves the regular and systematic review of the organization's activities and results.

By way of making the framework more easily understandable and applicable to almost any business the model describes nine key areas, or criteria, which are important to all organizations.

- Leadership
- People management
- Policy and strategy
- Resources
- Processes

These criteria are termed Enablers and are concerned with how results are achieved within an organization. The final four criteria:

- People satisfaction
- Customer satisfaction
- Impact on society
- Business results

Are called Results and are concerned with what the organization has achieved and it achieving.

The framework indicates that customer satisfaction, people satisfaction and impact on society are achieved through leadership driving policy and strategy, people management, resources and processes, leading ultimately to excellence in business results. Thus, if the words 'total quality' do not fit into a particular organization they may be substituted for 'business excellence', as this

model simply proposes a framework for managing a business in an excellent way in terms of today's thinking.

The self-appraisal guidelines show how each criterion may be split into a series of criterion parts covering various aspects of the parent criteria. Each subsequent criterion part has series of areas to address, which may or may not be considered by an organization.

Total quality is an all-embracing management philosophy and should not be viewed as add-on activity. It cannot be seen as an additional task for the manger. Rather, it must form an integral part of the manger's role and indeed part of all others in the organization. For this to be the case total quality must form part of the fabric of the organization. Total quality is not what we do. It is what we are.

Consequently, quality management must be used as a competitive weapon within the organizational strategy and the organizational strategy must be developed in a total quality way. Only then will an organization be seen to be striving for world-class status.

However, a review of the elements will serve to illustrate how the integrative nature of his model requires a new perspective on how to manage quality.

Leadership

The behaviour of all managers is driving the organization towards total quality. A total quality approach should demonstrate:

- Visible involvement in leading total quality
- Recognition and appreciation of the efforts and successes of individuals and teams
- Support of total quality by provision of appropriate resources and assistance
- Involvement with customers and suppliers

Policy and Strategy

The organization's mission, values, vision and strategic direction and the ways in which the organization achieves them:

- How policy and strategy are based on the concept of total quality
- How policy and strategy are formed on the basis of information that is relevant to total quality
- How policy and strategy are the basis of business plans
- How policy and strategy are communicated
- How policy and strategy are regularly reviewed and improved

People Management

The management of the organization's people. How the skills and capabilities of the people are preserved and developed through recruitment, raining and career progression:

- How people and teams agree targets and continuously review performance
- How the involvement of everyone in continuous improvement is promoted and people are empowered to take appropriate actions

Resources

The management, utilization and preservation of resources:

- Financial resources
- Information resources
- Material resources
- Technology resources

Processes

The management of all the value-adding activities within the organization:

- How processes critical to the success of the organization are identified
- How the organization systematically manages its processes
- How processes' performance measurements, along with all relevant feedback, are used to review processes and to set targets for improvement
- How the organization stimulates innovation and creativity in process improvement

- How the organization implements process change and evaluates the benefits

Customer Satisfaction

- What the perception of external customers is of the organization and of its products and services.

People Satisfaction

- What the employee's feelings are about their organization

Impact on society

- What the perception of the organization is among society at large. This includes views of the organization's approach to quality of life, the environment and the preservation of global resources

Business results

- What the organization is achieving in relation to its planned business performance (financial and non-financial measures)

The objective of this text is to asses the knowledge and understanding requirements of the manager involved in the development of a total quality programme. The basic themes of the text are:

- How to maintain and improve service and product operations
- The implementation of changes in services, products and systems
- How to ensure hat key and support processes are identified, reviewed and revised to ensure continuous improvement of the organization's activities
- How to develop teams and individuals
- How to plan, allocate and evaluate work carried out by teams
- How to create and maintain affective working relationships
- The planning, controlling and optimization of financial resources
- Obtaining, evaluation of and organizing of information
- The necessity to exchange information to solve problems and make decisions

Quality Strategy

A total quality strategy can embrace many objectives:

- To improve service to the customer
- To improve business reliability and operating efficiency
- To develop people-involvement mechanisms
- To improve company-employee communications
- To establish clear departmental goals
- To facilitate an open style of management and team building
- To achieve accreditation to ISO 9000.

Example of Quality Policies

Total Quality Policy

We believe that our total commitment to continuous improvement will guarantee the future of this company fulfilling the needs and expectations of our customers and employees in a responsible professional and more profitable way. Our objectives are:

- To introduce and maintain a company-wide quality improvement programme
- To achieve the total commitment of all employees
- To achieve accreditation to BS 5750
- To meet the needs and expectations of our internal and external customers
- To improve communication between our company and its customers.

Customer Relationship Policy

We believe that we will enjoy successful relationships with or customers by continuously meeting their needs and expectations through our policy of quality and reliability. Our objectives are:

- To target those customers with whom we wish to develop a mutually profitable business relationship

- Continuously to develop and promote our reputation as a quality company
- To develop honest and trusting relationships through interactive communications.
- To develop customer-satisfaction measurement mechanisms which will help to ensure that customers' needs and expectations are met.

Employee Relationship Policy

We believe in providing secure and satisfying employment to all employees in an environment where ability and commitment are recognized and rewarded. Our objectives are

- To convince each employee that their whole-hearted participation in the company-wide quality improvement programme is vital to its continuing success
- To develop and maintain effective and open communication with all employees
- To identify training needs
- To provide opportunities for the development of all employees through specific training
- To create an environment in which ability, commitment and quality of performance are recognized and rewarded
- To provide a safe work9ng environment
- To ensure that company procedures and safe working practices are understood and adhered to
- To continue to provide all employees with the resources necessary to ensure the success of the company.

Monitoring Performance

We believe in monitoring the performance of the company and its employees at all levels as part of the process of continuous improvement. Our objectives are:

- To ensure that all employees understand the company's policies and objectives

- To establish indicators against which company performance can be measured
- To agree performance indicators for all employees
- To establish a system for monitoring the performance of the company and employees
- To monitor individual performance and abilities
- To take corrective action.

Business Planning Policy

We believe that we can profitably meet the needs and expectations of all our customers by providing a quality product and service through a commitment to continuous planning and improvement. Our objectives are:

- To define the needs and expectations of existing and potential customers by continues market research
- To develop a business plan to include marketing, operational and financial strategies
- To make full use of the resources within the company
- To promote and enhance the company's image in our chosen market
- To have and maintain effective leadership within the company.

Each detailed objective can then be developed to incorporate a number of key aspects that should be concentrated on by management and used to guide the tactical implementation in individual departments and functions. Subsequently, annual operating plans can be developed which detail the specific objectives and priorities.

Any objectives identified should focus on meeting the needs of the business as identified in the strategic plans. All total quality activity should be focused on meeting these objectives. In addition to continually gathering information from customers as regards the adequacy of policies and strategies in helping meet their needs, it is also beneficial to receive feedback from employers in terms of how strategies impact upon them. Team meetings and presentations are possible methods of receiving feedback. Indeed, existing methods of communication with employees can be used to formulate, communicate and

review strategy. This can be employed as a mechanism for developing the commitment of employees to the implementation and realization of strategies.

Business Process Analysis

Business process analysis is a method for analyzing how work is accomplished to identify areas for improvement. Processes that may be analysed range from hiring systems to drawing revision systems, from software design to methods for procuring computers. Some processes involve the entire company while others are contained within a small department or a single employee's job.

Any business process can be viewed as a group of related tasks that utilize the resources of the business to produce specified results. As such, it is a repeatable sequence of activities that has measurable input(s), value-added activities and measurable output(s).

Business Process

The objectives of business process analysis are o find ways to improve effectiveness in meeting customer needs while eliminating waste of materials, capital and the time of people. This improves competitive position while enhancing process adaptability to ensure continuing relevance to changing business needs.

A high-quality process has the following characteristics:

- Effective - achieves the intended results, meeting the customer's requirements
- Efficient - operates with minimum resources
- Under control - tasks are documented, responsibilities are clearly defined, variability is minimal
- Monitored - key control indicators are in use to identify changes in the process
- Value-added - contribution to business is defined, measured and tracked.

Achieving this level of process maturity is no accident. There are close similarities between managing processes and managing people.

Process Re-engineering

There comes a point when the effort required to improve the performance or efficiency of an existing process does not deliver an adequate return. Sometimes performance cannot be easily improved because of the impact or constraints of another department or function. Process re-engineering is an approach in business improvement that aims to change the way a business performs. It does this by focusing on the core or critical processes that deliver value to the customer.

To understand the current situation as regards efficiency of processes, it is important to identify value-added elements of the existing practices and to measure the performance of the business processes. Re-engineering a process means that the organization is realigned to deliver the value-added activities along the critical business process, eliminating, as far as possible, the non-value-added activities.

Process re-engineering can be conducted at two levels.

- ➢ Process improvement: Improvements are largely driven by internal factors and perspectives such as correcting recognized process problems
- ➢ Competing with competitors: Improvements are largely driven by external factors and perspectives. Benchmarking is a technique used to determine performance gap. Process re-engineering can help to close the gap and make a quantum leap improvement.

States of Process Re-Engineering

Determine key success factors and processes that produce them. The organization's strategy is often the starting point for process development as strategic planning can reveal the need for significant change and pinpoint the processes that need transformation. When choosing which process to redesign, the following questions should be considered:

- Could this process be eliminated (without affecting customer satisfaction)?
- Does the technology exist to replace this process?
- Is the process output required by an external customer?

Benchmarking

Benchmarking can be an effective method of gaining a good understanding and knowledge of processes and practices. It is the act of defining the best systems, processes, procedures and practices. The measurement of business performance against the best of the best, through a continuous effort of constantly reviewing processes, practices and methods, can serve as an enabler for maintaining high levels of performance and competitiveness.

Types of Benchmarking

There are, generally, four main types of benchmarking approaches which have been recognized:

- **Internal benchmarking:** This is, strictly, a continuous effort of establishing good practice uniformly and company-wide by continuously comparing what takes place in all the various operations of the organization. While the main advantage is the ease of implementation and the low requirement in terms of resources and time, it is targeting an internal standard only
- **Competitive benchmarking:** This type aims at comparing specific models or functions with main competitors. It has also been described as reverse engineering (tear-down) since the starting point in most cases has been the product and looking at its characteristics and functionality. The advantage of this approach is the direct comparison with main competitors. The disadvantage, however, is the difficulty with which information on processes is obtained and comparison with competitors may now point to best practice
- **Functional benchmarking:** This type compares specific functions with best in industry and best in class. It is a positive approach to benchmarking but, because it is related only to specific functions, may not be of benefit to other operations in the business organizations concerned
- **Generic benchmarking:** This is the ultimate in terms of benchmarking application. This approach applies o all functions of business operation. It encourages the continuous effort of comparing functions and processes with those of best in class.

Without Benchmarking	With Benchmarking
• Internally focused	• Understanding of other industries
• Few solutions	• Ideas from proven practices
• Customer requirements determined subjectively	• Best practice solutions
	• Credible goals
• Goals and objectives lack external focus	• Understanding outputs
• Strengths and weaknesses no understood	• Real problems solving

Competitive Benchmarking

Comparing one company's performance with that of another is a reflex of TQM. Competitive benchmarking is a continuous management process that helps firms assesses their competition and themselves and to use that knowledge in designing a practical plan to achieve superiority in the market-place. To strive to be better than the best competitor is the target.

The idea is to benchmark performance, not only with one's direct competitors, but with other firms as well to discover best practice and bring that practice back to one's own company.

Aim: 'To better than the best competitor'

Means: By benchmarking the following:

- ➢ Products: products and services delivered to external and internal customers.
- ➢ Process: business process in all departments/functions.
- ➢ People: organization, business culture and calibre of people.

When done correctly competitive benchmarking produces the hard facts needed to plan and execute effective business strategies that fully satisfy agreed customer requirements.

The competitive benchmarking process has the following five steps:

1. Decide what is going to be benchmarked. These may include products and services, customers, business processes in all departments and the organization, business culture and the calibre and tanning of employees.
2. Select the competitors who are the best in terms of products and services, business processes and people, aspects that one's firm wants to measure. (Usually firms will be looking at their direct competitors. But they may go outside these companies to compare themselves with an outstanding leader in some aspect of business which is famous for certain practices.)
3. Decide on the most appropriate measurements which will be used to define the performance levels in the competitor's business and in one's own company and develop a strategy for collecting the data needed to make meaningful and valid comparisons.
4. Determine one's competitors' strengths and assess those strengths against one's own company's track record or performance. Ask questions such as:
   a. Is the competitor better? If so, how much better?
   b. If they are better, why are they better?
   c. What can we learn from them? How can we apply what we have learned to our business?
5. Develop an action plan. Use the analysed data to set company goals to gain or maintain superiority and to include these goals in the formal planning process. Gaining senior management's acceptance of the results of the competitive benchmarking is crucial to getting commitment to the action plans. A staged problem-solving process is often used to achieve the action plans.

Accordingly competitive benchmarking can be defined as the continuous systematic process for evaluating companies recognized as industry leaders t develop business and working processes that incorporate best practice and establish national performance measures.

Competitive benchmarking, then, is a vital component of any total quality programme. Five solid reasons for actively using the techniques are to

- Define customer requirements.
- Establish effective goals and objectives.
- Develop time measures of productivity.
- Become more competitive.
- Determine industry best practice.

A simple approach to benchmarking called the benchmarking cycle show four separate sequential activities. The cycle starts with discussions and debates which establish the critical success factors in the business. Once these are decided on, it is essential to determine best-in-class performing among competitors. Data collection should eliminate high performance I terms of products and service, business process and procedures and people. The task, then, is to create programmes and projects to achieve best-in-class targets – to be better than the best competitors. Having put real measurement in place, performance is monitored, progress measured, the entire cycle is repeated and improvement spirals upwards.

Redesign of Process

Once the gap between current performance and targeted performance has been determined, the change process can begin. Naturally, a narrow gap can be resolved by a less radical change process, especially if the process is capable of being sufficiency improved without altering its fundamental structure. Where a wide gap exists, the process may have to be completely restructured before performance will improve.

Planning and Implementation

Effective change management is extremely important during this phase. The aspect of change management which is critical is the assessment of the effect the redesign will have. A successful plan should include such elements as skill requirements, training needs, communication of rationale, and benefits of new process to employees.

Problem Solving

Identifying and solving problems is an integral part of all improvement projects and a means for continually satisfying the customer. The opportunities for improvement identified through departmental task analysis and business process analysis can provide possible projects for problem solving. Problem

solving for quality improvement uses a variety of techniques that fall into four general categories:

- Flow charting
- Idea-generating techniques
- Problem-analysis techniques
- Statistical techniques

The purposes of organised problem solving in a TQM framework are the following:

- To improve a company's performance by successfully solving problems that are causing dissatisfaction for internal or external customers
- To ensure that problem solvers do not jump to solutions before they have analysed the causes of the problems.
- To provide a process that can be used by project teams to maximise the contributions from each individual.
- To implement solutions to problems that really do eliminate the problems though prevention processes
- To reduce the cost of quality

There are six steps in the problem solving process. They should normally be taken in sequence.

Step 1: Identifying and selecting the problem. Many people rush out and end up solving the wrong problem. It is important to define a problem as the difference between the target and the actual. A problem statement should be written based on the measurements taken that will focus attention on the causes of the deviation

Step 2: Analysing the problem causes. Spend time on the causes and avoid jumping to solutions only to find they do not actually solve the problem.

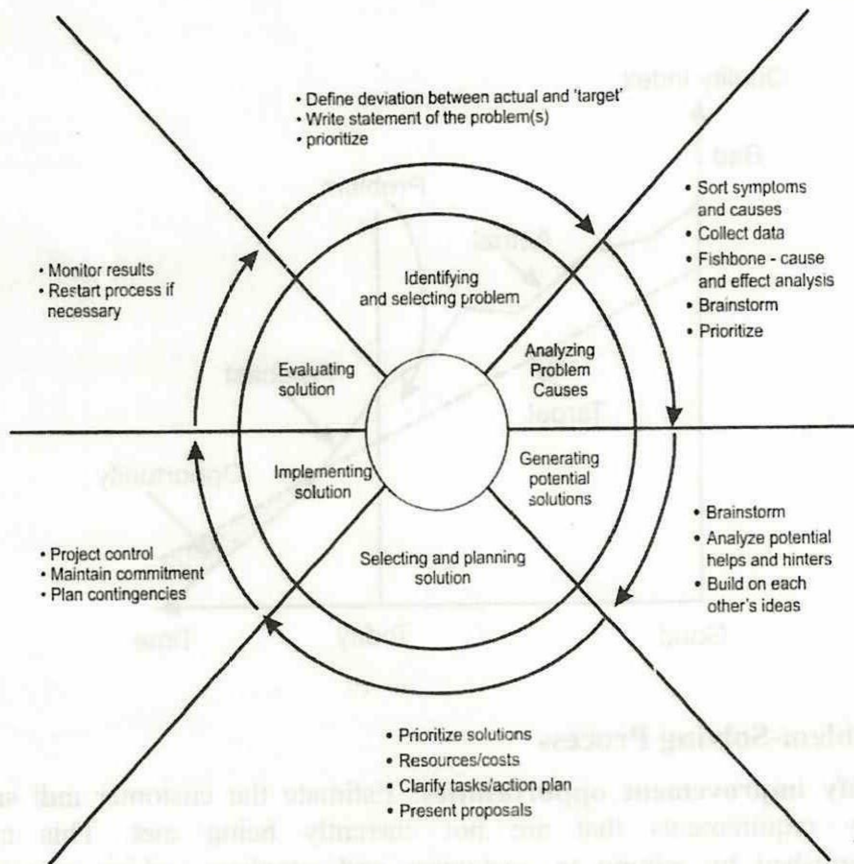
Step 3: Generating potential solutions. It is essential to explore alternatives because the first solution is not always the best.

Step 4: Selecting and planning the best solution. Planning the best solution results in cost effectiveness and makes sure the right people do the right things at the right time.

Step 5: Implementing the solution. Seeing the job through to conclusion is essential, with appropriate contingency planning in case some of the new ideas do not require workout.

Step 6: Evaluating the solution. Reviewing the results is vital to be sure the problem really has been solved.

The Problem Solving Process



There are five key measurements for each output

- ➢ Target: the budget or target level of performance to be achieved
- ➢ Forecast: The forecast level o performance which may be better or worse than the target depending on current business situation. The forecast also shows when the target will be reached.
- ➢ Actual: The actual level of performance achieved to data.
- ➢ Problem: The Difference between the actual and target level of performance where 'actual' is worse than 'target'
- ➢ Opportunity: the opportunity for improving quality better than target at no extra cost.



The Problem-Solving Process

1. **Identify improvement opportunities:** Estimate the customer and supplier quality requirements that are not currently being met. This can be accomplished by talking to customers and suppliers, asking people who provide products and services what their experiences are, etc. Another

effective method is to survey the people in the organization to determine what they perceive to be their biggest problems and where the waste is (waste of people's time, materials or capital). Brainstorming is an effective tool for collecting a lot of information from a group in a short period of time. It is useful at this state and at other states of the problem-solving process. Identify the primary activities your department or unit performs that contribute to the business goals (see department task analysis). Which of these are reformatting or duplicating activities? Do they contribute unique elements to the end product or service? Using the flow charts created in business process analysis, determine the value-added steps and identify them on the flow charts. Value-added functions are any activities that directly contribute to the deliverable product. Not all non-value-added work can be eliminated, but it should be examined to compare what is really needed with what is being performed.

Problems Solving Process

Step	Purpose	Process	Product
Identify improvement opportunities	Define a list of areas for improvement	• Employee surveys	List of potential improvement projects
Prioritize and select problems	Determine the most important problems for resolution	• From a team to select projects • Choose according to greatest financial or quality impact	Prioritized list of projects
Define the problem	Determine the extent of the problem	• Use specific company language	Specific definition of the problem
Analysis problem causes	Determine the root causes of the problem	• State who, how, when, where, etc.	List of true causes
Develop solutions	Establish potential solutions	• Visualize the process without waste	List of potential solutions

		• Collect data • Determine true solutions	
Prioritize and select the best solution	Determine the optimum solution	• Representation of all affected areas	Prioritized list of potential solutions
Implement solution	Solve the problem	• Develop an implementation plan • Represent all concerned • Maintain clear ownership of the problem	Best solution implemented
Evaluate improvement	Assess the degree of improvement	• Establish measurement system • Implement system • If not optimal solution repeat steps 3-7	Extent of improvement determined
Hold gains	Maintain the improvement	• Confirm ownership responsibility • Monitor process • Determine if it remains in control	Chronic area of waste eliminated

Examples of other items in the flow charts that can help identify areas for improvement are the following;

- Inspection
- Decision points
- Rework

- Reviews
- External interfaces
- Delays
- Customers
- Deliverable goods or services.

2. **Prioritize/select problems:** Prioritize the customer, supplier and employee quality requirements that are not being met. The problems that appear to be of highest common concern will often be the areas of greatest initial potential gain. Look for chronic areas of waste of people's time, capital and materials, and for work processes that can be improved. Select a problem to work on. Some solutions may be obvious at this point. If data exist showing that an optimum solution is already available, proceed to step 7. A key criterion in choosing areas to improve is the level of perceived financial or customer impact. These then become areas to invest-financial or customer impact. These then become areas to investigate to determine whether the perceptions are accurate. Problems that span beyond the department or organization should be handled using a team approach involving membership from all affected organizations. Start by identifying a team leader and having them attend a team leader course, then form a team to work on the problem. The scope of the problem determines the membership of the team. Financial impacts can be determined by estimating the totalling the cost to perform the work, the cost of failures and the cost of the failure detection and measurement systems. This is referred to as doing a cost-of-quality analysis. If a significant problem exists, these numbers can be large and estimates may be all that is required to demonstrate that action needs to be taken.

3. **Define the problem:** Have the team members fully define the current problem. Use specific, understandable language, stating who, what, how much, when and where. State in terms of impact and answer the 'so what' question. Avoid terms like 'lack of' or 'inadequate'. The purpose is to make sure that all people concerned with solving the problem understand exactly what it is. To achieve this understanding, define the problem in writing and have the group discuss or modify the description before attempting to analyse causes. This ensures that everyone is working on the same problem. Have the team members fully document the current processes (use a process flow diagram). Initiate the process of gathering data on the problem by developing

and implementing a data-collection plan. It is often advisable at this state to consult with a statistician to make sure that the plan will result in useful and significant data.

4. **Analyse problem causes:** Before analysing causes, ensure representation from all departments and organizations impacted by the problem or its solution. Make sure the team members selected have the responsibility and authority to make process change decisions. Analysing problem causes is often best initiated by bringing together the team members and having them construct a cause-and-effect diagram. This sets the stage for collecting sufficient data to enable true causes to be determined. Gather and review data to determine the amount of variation that is occurring within the existing process. Use simple improvement tools as appropriate, statistical tools as necessary. Data should be associated with ways the customers and suppliers measure success of the product/service.
5. **Collect solutions:** Once the root causes have been determined and have been verified through data collection and analysis, the team may choose to modify the process. Many modification ideas generally arise at this point. Solutions should be selected that improve conformance to customer needs and expectations, increase fitness for use, and minimize variation from product to product, service to service.
6. **Prioritize and select the best solution:** A 'best' solution should be chosen for implementation, based on the data and a full investigation of the alternatives. Strive for solutions that involve group consensus rather than having one or a few members of the team dominate the discussion. When problems span beyond one department, strive for solutions that will solve these problems across all affected organizations, the communicate this information upward.
7. **Implement the 'best' solution:** Develop and implement a plan to eliminate the problem. This may involve modifying the process, establishing training and education, job transfer, cross-training, counselling, redefining company procedures, changing policies, etc. When the improved process spans beyond the department, communicate the implementation recommendations upwards in the organization. If higher-level approvals are required, management presentations may need to be developed to acquire these approvals. It is

important to identify clearly who is responsible for solving the problem, as well as who is going to follow through on implementation and evaluation.

8. **Evaluate improvement:** Measure to determine the amount of improvement that has taken place. Periodic measurement will warn when a problem is returning or when gains are not being held. The evaluation system adopted should be based on ways the customer and supplier measure success. It should include checks for conformance to specification, fitness for use and consistency/variation. If real improvement was not achieved, return to steps 3 to 6 and repeat. Several repetitions of the improvement cycle may be required to achieve permanent improvement. The data collect initially may not accurately measure the amount of improvement for several reasons - fear of recrimination for 'failure', unclear data descriptions, wilful data misrepresentation due to pressure, desire to show immediate improvement, etc.

   Data are used in the new system:

   - To reveal problems
   - To verify the extent of a problem
   - To analyse a problem
   - To prevent problems
   - To confirm that the corrective measures taken alleviate the problem or improve the process.

   It is important to understand the points in a process were measurement and corrective action can produce the greatest benefits. These are called the key quality indicators. Discovering the key indicators in an organization or a process can be very challenging. However, it is one of the most rewarding activities a group can undertake in setting the stage for real improvement.

   A key quality indicator has the following characteristics:

   - It is measurable, in either a numerical or a qualitative scale
   - It provides a basis on which decisions can be made that affect quality
   - It is understandable by those who need to review process improvement (including customers).
   - It is expressed in terms that invite comparisons with similar processes.

Each process will have its own key quality indicators. Examples might be errors per page in a document, the flow time necessary to respond to customer inquiries, the rate at which employment applications can be processed, or the percentage of accounts payable that quality for a discount. It is important that indicators are selected at intermediate states within a process, where prevention-oriented quality improvement can be made, not just at the end of the process. In order to determine the amount of variation occurring in the key quality indicators of a process, measurement samples are taken according to a carefully devised measurement plan. This plan should always be constructed with the full participation of a person having substantial statistical training.

9. **Control at the new level:** Confirm responsibility for maintaining the improvement. Ensure that the improved process is continuously monitored and that data are gathered and reported (to indicate whether the process remains in control). Maintain visibility of improvements through normal business cycle reviews. This can be accomplished by establishing a system of periodic management review or quality audits of progress and performance. Perform the review in meetings already structured to obtain periodic visibility (such as during 'cost and schedules' meetings).

UNIT 6

TRAINING FOR QUALITY

Introduction

Education and training for managing quality is the essential foundation for success in establishing a reputation; a reputation as an organization which is determined to satisfy its customers. The ways in which education and training are planned and implemented are as important as the content.

The purpose of education and training is to develop a sense of commitment to change supported by specific skills that enable the change to be initiated and sustained. In the context of quality management, the objectives must be related to the roles of every individual within the organization. Only one weak link in the chain has the potential to undermine the change process.

Education is the process of communicating a need - need for a relationship with the customer which enables their requirements to be met. Training is important as the second element of interaction as it enables skills to be developed. In order to satisfy customer requirements, all individuals must be equipped with the necessary quality improvement tools.

The major difficulty in defining and carrying out education and training in quality management is defining what is meant by the term 'quality management' and by the other related subjects such as quality assurance, and quality control.

The Training Process

Identification of Training Needs (ITN)

This is the first stage in formalizing an effective training programme. The identification of training needs should be carried out in two main areas:

- Problem analysis
- Performance analysis of departments and individuals.

Problem Analysis

This should be done by identifying problems being experienced by the company. Examples of problems are:

- High reject rate
- High level of customer returns

- Missed delivery dates
- Delays with introduction of new products
- Drop in sales
- Poor service to customers.

The next step is the analysis of the problems to indicate the major causes. For example, is the high reject rate and high level of customer returns due to manufacturing faults, to design faults or to defective raw materials? If it is a manufacturing fault, is it primarily related to the operator or the equipment? Are missed delivery dates or the introduction of new products due to bad productivity, poor production planning, or products being reworked or replaced due to poor quality?

Is drop in sales due to missed delivery dates, poor quality, high price, increased competition, a declining market, or an out-of -date product range? From another viewpoint, accepting that organizational targets for productivity and quality have been achieved, may cause one to overlook that the performance of one department at 105% of target has compensated for two other departments' performance at 98% and 97%. Similarly, accepting that one department has achieved its target may conceal the fact that some operators are compensating for other operators with regard to either productivity or quality performance. Generally, operator faults fall into three categories:

- Inadvertent faults which are quite infrequent and are caused by lack of concentration or carelessness, and can only be eliminated completely by fool proofing the operation. However, they can be reduced by identifying responsible operators and by better supervision and training.
- Technique faults are normally recurring faults, either with one or more operators, and can be reduced by the training of operators. However, what are frequently identified as operator-related faults is misrepresented. This is particularly so in the area of quality failure, where a frequent difficult occurs with different interpretations of the standard of quality required. To eliminate these problems, all employees, not just operators, must have a common understanding of quality and understand their personal role in causing quality to be routine

- Conscious faults can be witting, intentional and persistent. A chance in behaviour is required to overcome these faults and training may have a role.

Once the cause or causes of problems have been identified, the next step is to identify needs. These could be of a training or non-training nature. For example, a high reject rate identified the following needs:

- The introduction of raw material inspection (non-training need)
- The training of inspectors in the new raw material inspection procedures (training needs)
- The modification of quality standards for operators (non-training need)
- The training of operators and inspectors in these new standards (training need).

The example of missed delivery dates may identify the following needs:

- The introduction of new equipment (non-training need)
- The setting of production standards for each operator (non-training need)
- The training of operator in the new methods of production (training need).

Performance Analysis of Departments and Individual

To ensure an adequate identification of training needs, it should be approached on a top-down and a bottom-up basis. The reason is that minor variances on a department-by-department basis may not be significant for the individual department, but the cumulative effect for the company could be very significant. Examples would be a department having an unfavourable yield variance of 0.5, which may not be noteworthy for that department but similar results for six departments give a variance of 3%. This could be critical from the company's viewpoint. Similarly, a production delay of four hour in each of six departments may result in missing a delivery date by three days.

Checklist for Identifying Training Needs

- At the outset of the ITN, clear terms of reference should be determined and agreed by management. Put them in writing and give a copy to management. These are your agreed and written objectives. If it is found necessary to change your terms of reference, inform management, rewrite them, and give management a copy of the new terms.

- Inform people about what you are trying to do. Nothing is more suspicious in the work environment than asking people searching questions about their work without explaining why you want to know. All information obtained should be regarded as confidential.
- Determine the range of work and the degree of versatility required -e.g. are there any special learning difficulties encountered by the operator?
- Identify the common skills.
- Determine the areas where job knowledge is involved. Is there sufficient job knowledge for the operator to work efficiently?
- Establish the present operator performance. Closely examine the reasons for operators not making Experienced Workers Standard in a certain time - or at all.
- What is the organizational set-up? How is the work flow controlled? Any hold-ups due to shortage of materials - is quality control, inspection or test involved?
- Obtain a quality specification if there is one. Determine the overall quality standards. What is the scrap/rework rate? How much does it cost?
- What are the production control objectives and output figures?
- What happens to the documentation? What is its purpose? Who uses it any why? It being used effectively?
- Are the setting-up methods and machine conditions adequate for the tolerances required? Is the preventative maintenance adequate? How much downtime is there? Can any corrective action be taken if inefficient running is discovered?
- Has the working environment an effect on the quality or quantity of production output? Remember that the training environment should match the actual working environment as closely as possible.
- Accident rates should be investigated and the reasons for accidents sought. Reportable accidents should be looked into very closely. How do the figures compare with local and national averages?

- Does the company have any known plans to expand generally, or in a specific department, or, even set up a new kind of department? There may be a training need if the answer to any of these questions is 'yes'.
- It is very important to estimate, as accurately as possible, cost savings which result directly from the application of systematic analytical training. For example, we should investigate the cost of present training arrangements, the cost of proposed training and the saving in rework or scrap or in any other area due to better training and state the saving in pounds.

Analyzing Training Needs

Information Required

The purpose of analyzing training needs is to determine what type of training is required for specific operations and what type can make the most economic contribution towards the solution of a problem. Certain information needs to be gathered so that an analysis can be made of the most appropriate type of training required:

- Range of work: In many tasks this is likely to present a problem or variety in the sense that the experienced worker is capable of producing a wide range of products; operating several types of machine or using a range of materials. These abilities have often been built up over the years of experience and it is necessary to discuss with management whether learners should be trained to achieve this level during their initial training course. It must be remembered that there is no point in acquiring a skill if the trainee is not given an opportunity to use it within a reasonable period under production conditions. If this is not possible, the skill is likely to be lost and may have to be relevant. On the other hand, the problem of variety of product often appears more complex than it is in the sense that skilled operatives have learnt to use a limited range of basic skills and can apply them to produce a wide range of products.
- Length of present training and cost of training: When considering length of present training it is important to ensure that the information given relates to the time taken to reach average experienced worker's standard of quality and output. Training times to earn basic wages take no account

of the cost of loss of overhead recovery. Present training times can be ascertained by examining wages or production sheets.

- Present training arrangements: Some typical questions to ask are:
  - How long do new starters take to reach experienced workers' standard?
  - Who is responsible for training new employees?
  - How is the training carried out?
  - Have instructors been trained how to instruct?
  - What checks are there on trainee progress to evaluate suitability, output and quality?
- It is also necessary to assess the attitude of supervision to training, and to discover whether they recognize a need to improve the training arrangement.
- Organization of department: The general background to production in the department must be ascertained to find out such matters as:
  - How flow of work is organized
  - How work is inspected and quality assured
  - How operatives receive instructions
  - How machinery is serviced.
- Analysis of future company plans: Some estimate of future production requirements must be made in order to forecast the number of trainees required. Because analytical training reduced as fewer people times, the number of trainees required is reduced as fewer people are in 'training' at any one time. Thus a planed expansion of production might be achieved with no increase in numbers in the labour force. Other factors to be taken into account include
  - What technological changes are envisaged, i.e. new skills required?
  - If a new factory is being opened, will the local labour force possess the necessary skills?
  - Will any changes in product demand new skills of operators?

The Training Plan

The information obtained during the training needs analysis acts as a basis for the training plan. This should cover such matters as:

- A precise statement of the objectives for the training detailed in quantifiable terms where possible.
- The nature and methods of the training to be adopted. For example, there may be formal in-company courses or planned experience on the job.
- The duration of the proposed training periods.
- The priority of each proposed training item-for example, immediate, short or long term, as part of an overall training plan.
- The cost of the training where it is practical to estimate this.
- Target dates for completion of the specified training activity.

Organization Responsibilities for Training in Quality

What is the context of education and training for managing quality? It is one part of the enabling process for success in an organization's effort to be dedicated to customer satisfaction. Thus it is necessary to focus on the overall process of improvement and ensure that trainees at all levels relate to an environment in which investment of time and effort in learning is given long-term value.

What training and education needs do the various levels of employees have in order to make them effective enablers of improvement? Typically, five levels of responsibility can be identified for most organization:

- Senior management
- Middle management
- Line supervision
- Team leaders
- The individual

Compared to two years ago	(Check one)		
	Yes	No	?
1. Does your manager have a better understanding of how you perform you job?			
2. Does he have a better understanding of you as an individual?			
3. Does he better indicate recognition of your good work?			
4. Does he better utilize your particular skills?			
5. Do you have a better picture of what he expects from you in term of job performance?			
6. Do you have a better picture of how you d\stand with him overall?			
7. Does he discuss your job performance with you more frequently?			
8. Do you have a greater opportunity to present you side of a story during those discussions?			
9. Does he take a greater personal interest in you and your future?			
10. Does he make a greater effort to help you develop yourself?			

Senior Management

Recent evidence indicates that organizations succeed or fail in their drive for positive management of quality in direct proportion to the amount of visible commitment from senior management level. Their responsibilities include:

- ➢ Harnessing quality-improvement activities to the corporate goals of the organization
- ➢ Ensuring that learning needs at individual, departmental and overall organizational levels are identified

- Ensuring that a purpose, policy and plan for quality development are established
- Ensuring that adequate resources are available for the operation and evaluation of the plan.

Thus, the education process for the senior executive needs to stress the imperative nature of personal commitment, continually reinforcing the messages and ideas that need to be heard at all levels.

Senior Management Training

- Introduction to total quality. Emphasis on the competitive environment and the need to use quality as a differentiator
- The need to own a strategy and vision for quality
- Development of an action plan
- Appreciation of the tools and techniques for quality improvement.

Middle Management

Typically, middle mangers carry the functional responsibility for ensuring that employees are helped to perform their jobs effectively and efficiently. Their responsibilities include:

- Guiding the transformation process as part of a steering committee and / or quality improvement team
- Planning implementation
- Leading work groups in the use of measurement and problem resolution techniques

The skills to be developed are primarily concerned with putting the quality improvement process into practice and carrying out quality improvement team tasks.

Middle management training

- Introduction to total quality
- Development of an implementation plan for local areas
- In-depth study of tools and techniques of quality improvement.

'Middle manger' covers a wide spectrum of responsibility. In larger organizations, the training programme for middle managers who are at the higher end of the spectrum will have much in common with the programme for senior management. At the lower end of the spectrum the training may well overlap with that used for first-line supervisors. In planning training activity, consideration should be given as to whether or not it is preferable to offer a single standardized programme for middle managers or to design specialized programmes for the various categories for middle mangers.

First-Line Supervisors

This category of management has traditionally been exposed to training courses which have emphasized:

- Elements of supervision
- Work planning
- Job technology (processes, materials, tests etc.).

Team Leaders

As team leaders may well hold middle, junior or first-line management status, there is potential for overlap in the training provision. While

- An in-depth working knowledge of the total quality programme and,
- A working knowledge of quality improvement tools are necessary, emphasis should also be placed on specific skills for leading team activity:
    - Communication
    - Presentation
    - Interpersonal
    - Teambuilding.

The Individual

It is at this point in moving down through the organizational hierarchy that consideration has to be given to how a company 'manages' quality. As the efforts of all employees are to be geared towards managing individual responsibility for quality, it is important to determine what it is that management expects of its employees.

Individual quality accountability rests equally with everyone. The most effective demonstration of commitment of a senior manger is a preparedness to show personal determination by applying quality-improvement tools and techniques to their own job. All employees need to be able to identify their customers and suppliers and to assess the extent to which their requirements are understood and satisfied.

It is significant challenge to communicate consistent messages in training and education for quality management to all employees. It requires:

- An objective view of the individual value set to be implemented
- Tools to be used so that communication between individuals is unhindered
- An introduction to common systems to support personal and team efforts to effect quality improvement.

This process could be regarded as one of empowerment; removing the traditional barriers to improvement where individuals feel that may suggestion for change would be best in an environment where pressures of cost and schedule override quality. Training for all employees should be such that they are fully aware of:

- Why the quality programme exists
- Who is responsible for quality
- The objectives of the programme
- Individual roles in an organizational context.

MODEL QUESTION PAPER

Paper 4.1: QUALITY MANAGEMENT IN HOSPITALS

Time: 3 hrs Maximum Marks: 10

PART – A (5 x 8 = 40marks)

Answer any **Five** questions

1. Explain the seven tools of quality control.
2. Describe the initiatives and elements of TQM with the process involved.
3. Write a note on Patero Analysis.
4. State the objectives of forming a Quality Circle .
5. A student prepares well of the orientation but does not 'Pass', using the 'Case and effect diagram' identify three main reasons.
6. Explain Fishbone analysis with an example relating a hospital situation.
7. What is the purpose of Benchmarking?
8. What do you understand by Quality policy? Explain with reference to hospital administration.

PART – B (4 x 15 = 60marks)

Answer any **Four** questions

9. Argue for and against the need for ISO in a service industry
10. Explain with explain the areas of operations in which quality need to be maintained
11. Explain the different factors in which quality needs to be maintained as per ISO
12. What is the need for training? How to ensure quality in training?
13. Explain the various quality concepts with illustrations .
14. Explain the importance and components of training in quality care.
15. Highlight the importance of quality assurance with illustrations.